

# McLean County

## Manual of Practice



As Adopted January 19, 1999

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# A Manual of Practice for the Design of Public Improvements in McLean County

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# McLEAN COUNTY MANUAL OF PRACTICE

## MANUAL OF PRACTICE FOR THE DESIGN OF PUBLIC IMPROVEMENTS IN McLEAN COUNTY

### CHAPTER 1 - Engineering and Administration Procedures

#### 1.01 INTRODUCTION

A major share of what eventually becomes publicly owned improvements are designed and constructed by private interest. This manual has been prepared to insure that the design of such improvements will result in construction meeting the requirements of McLean County. This chapter explains the processing requirements and procedures as required by the Subdivision Ordinance of McLean County for the various documents required prior to, during, and after construction in order to accomplish these purposes.

The manual is also intended to provide a uniform design criteria for facilities designed for or by McLean County.

Metric equivalent measurements have been incorporated into this manual and are denoted in parenthesis following the English measurement.

#### 1.02 DEFINITION OF TERMS

The following words and terms, whenever they occur in this manual shall be interpreted as herein defined.

ADA. Americans with Disabilities Act.

Abutting (Contiguous, Adjacent). To have one or more common boundary lines or district lines.

Alley. A public right-of-way which is thirty (30) feet (10 m) or less in width and affords a secondary means of access to abutting property. Frontage on an alley shall not be construed as satisfying the requirements related to frontage on a public street.

As Built Plans. See Record Drawings

Block. A block is a tract of land bounded by public streets, or by a combination of streets and public parks, cemeteries, railroad right-of-way, shorelines of waterways, or any other lines of demarcation.

Building Setback Line. A line within a lot, or other parcel of land, so designated on the preliminary plan, which denotes the area between such line and the adjacent street right-of-way line where an enclosed building, and other obstructions are prohibited, except those permitted obstructions as regulated by the McLean County Zoning ordinance.

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Clear Water Collection Tile. An underground, enclosed conduit designed to carry sump pump/footing tile water, cooling water, swimming pool wastewater, etc.

Common Collector (Collection Tile) An underground, enclosed conduit designed to carry treated sewage effluent or clear water discharges from more than one lot of record.

Conduit. A buried pipe for the installation of wires or cables or the conveyance of gas, water, storm water or sewage.

Contractor. An individual, company, firm or other party or organization who contracts to physically construct all or a portion of a project for either a developer or McLean County.

Cradle. Bedding placed under and around a conduit for proper support.

Cul-de-sac. A minor street with only one outlet.

Design Engineer. The individual, responsible for the design and preparation of plans, specifications, and contract documents and who is a Licensed Professional Engineer in the State of Illinois.

Developer. An individual, company, firm or other party or organization who will be responsible for paying the cost of a project.

Development. Both the act of changing and the state of land after its function has been purposefully changed by man including, but not limited to, construction of structures on the land, and alterations to the land, except grading that does not alter the natural flow of storm water.

Drainageway, Improved. A portion of a right-of-way used or intended principally for storm, surface or ground water drainage which meets or exceeds the design and/or construction standards for public drainageways.

Drainageway, Unimproved. A portion of a right-of-way used or intended principally for storm, surface or ground water drainage that does not meet or exceed the design and/or construction standards for public drainageways.

Driveway. A private access for motor vehicles between a public or private street and one or more structures or off-street parking areas.

Easement. A quantity of land set aside over or under which a liberty, privilege, or advantage in land without profit, is dedicated and is distinct from ownership of the land, is granted either to the public, a particular person or a combination of both.

Field Inspector. An individual, company or firm appointed by the County Engineer to inspect construction to insure compliance with approved plans and specifications.

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Final Development Plan. A final plan that is required to be submitted to McLean County as specified in the Planned Unit Development regulations.

Final Plat. A map or plan for a subdivision and any accompanying material as described hereafter.

Final Punch List. A tabulation of deficiencies requiring corrective action prior to final acceptance of the project.

Frontage. The measure of lineal contiguity between a lot or portion thereof and another lot, public street, alley or public way.

Frontage Road. A minor street which is parallel and either adjacent to or within the right-of-way of a thoroughfare.

IDPH. Illinois Department of Public Health.

IEPA. Illinois Environmental Protection Agency.

Live Storage. That volume available in a storm water detention basin for runoff in accordance with the requirements of this manual.

Lot. A quantity of land capable of being described with such definiteness that its location and boundaries may be established and which is designated by its owner or developer as land to be conveyed, used or developed as a unit or which has been conveyed, used or developed as a unit, including any easements appurtenant thereto. Said land shall have frontage on a public or private street.

Lot, Double Frontage A lot which has a pair of opposite lot lines along two substantially parallel streets.

Lot of Record. A lot in a finally platted and recorded subdivision.

Manual. This document entitled "Manual of Practice for the Design of Public Improvements in McLean County."

Median. An area between two parallel streets or roadways.

"No-Access" Strip. A parcel of land at least one (1) foot ( 300mm) in width along a lot line within which no vehicular driveways shall be permitted.

Official Comprehensive Plan Is the composite of the functional and geographic elements of the Comprehensive Plan of McLean County, or any segment thereof in the form of plans, maps, charts, textual and the official map, as adopted by the McLean County Board.

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Official Map. A map adopted by the McLean County Board as part of the Comprehensive Plan which is designated "Official Map" in that Plan.

Official Zoning Map. A map adopted by the McLean County Board showing all the zoning district boundaries within limits of McLean County but outside the corporate limits of any municipality.

Outlot. A lot depicted on a final subdivision plat which does not meet the requirements of this Ordinance for lots of record and which may not be used for buildings or parking lots or other improvements except in connection with an adjacent lot as permitted by the Zoning Ordinance.

Parkway. The unpaved strip of land within a street right-of-way between a curb or edge of pavement and the right-of-way line.

Pedestrian Way. A right-of-way across or within a block designated for pedestrian use.

Planned Unit Development. A lot which is developed as a unit under single ownership or unified control, which includes one (1) or more principal buildings or uses, and is processed under the planned unit development procedure of the Zoning Ordinance.

Preliminary Development Plan. A tentative map or plan of a proposed development under the Planned Unit Development regulations.

Preliminary Plan. A plan of a proposed subdivision as described in this Ordinance.

Project. All of the various parts of proposed construction submitted to the County Engineer for approval.

Public Improvements. Public improvements includes streets, public utilities and other structures, fixtures or land appurtenances which are or are intended to be dedicated to the public, generally a Township or County.

Release Rate. The controlled rate at which storm water is released from a storm water detention/retention basin, not including overflow.

Right-of-Way. A strip of land dedicated to or used by the public for vehicular and/or pedestrian passage; storm, surface or ground water drainage; or public utility placement.

Roadway. A portion of a right-of-way used or intended principally for vehicular passage, with appurtenant drainage ditches, ways or structures which meet or exceed the design standards for the classification it holds.

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Sidewalk. A portion of land used or intended principally for pedestrian passage, which meets or exceeds the design standards for public sidewalks.

Storm Water Detention Basin. A reservoir designed and built for temporary storage of surface runoff, either on, below or above ground surface accompanied by controlled release of the entire stored water.

Storm Water Retention Basin. A wet bottom reservoir designed and built for temporary storage of surface runoff, above normal water level of the reservoir, accompanied by controlled release of the part of the stored water above normal water level of the facility.

Street. That portion of a public right-of-way used and maintained by the appropriate highway authority which affords the public the principal means of access to adjacent lots of record or property and meets the design and construction standards for the classification it holds.

Street, Boulevard. A street with a nonmountable median, usually with grass surface.

Street, Collector. A collector street functions to conduct traffic between major streets and/or activity centers. It is a principal traffic artery within residential areas and carries moderate volumes of traffic. A collector street has potential for sustaining minor retail or other commercial establishments along its route which will influence the traffic flow.

Street, Exterior. A street on the perimeter of a subdivision.

Street, Interior. A street entirely within the confines of a subdivision.

Street, Local. A short street, cul-de-sac, or court, the primary purpose of which is to conduct traffic to and from dwelling units or businesses to other streets within the hierarchy of streets.

Street, Major. A street, which has a high average daily traffic (ADT) and is not intended to be a residential street. A major street provides connection with major state and interstate roadways and has a high potential for the location of significant community facilities as well as retail, commercial and industrial facilities.

Street Standards and Classifications. The standards and classifications shall be the existing Illinois Department of Transportation classifications and standards as modified by the County Board pertaining to requirements for streets, as from time to time amended.

Street, Stub. A temporary dead-end street that extends to the boundary of the subdivision to provide future connection of streets to abutting unsubdivided tracts.

Subdivide. (1) The division of land into two (2) or more lots, parcels, or tracts; (2) the dedication of streets, ways, or other areas for use by the public; or (3) any division of

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land which creates more than one additional lot for transfer or ownership and/or building development, or where a new street or easement of access is involved; or (4) meets the definition of a Planned Unit Development as defined in the McLean County Zoning Ordinance; or (5) a long term lease of more than ten (10) years for new development.

Subdivision. The configuration of lots of record, outlots, public rights-of-way and public improvements that result from subdividing land in accordance with the procedures, requirements, and standards of this Ordinance.

Tertiary Treatment. A type of process designed to bring an IEPA common collector discharge into compliance with the current IEPA chemical and biological discharge requirements.

Unified Control. Unified control is the combination of two (2) or more tracts of land either through unified ownership or other arrangement, wherein each owner has agreed to allow use and develop their tracts as a single lot under the provision of the ordinance applicable to Planned Unit Developments.

Use. The purpose or activity for which the land, or building thereon, is designed, arranged, or for which it is occupied or maintained, and shall include any manner of performance of such activity with respect of the regulations of the Zoning Ordinance.

Watershed. That land area from which all runoff from rainfall would eventually reach the point in question by flowing over the surface of the ground or through existing improvements.

### 1.03 SCOPE

The review and approval of plans, specifications, and contract documents for certain types of improvements is also the legal responsibility of various other public agencies in addition to the County of McLean. This Manual is not intended as a substitute for the requirements of such other public agencies. It shall be the Design Engineer's responsibility to see that the proposed plans, specifications, and contract documents meet the legal requirements of all other public agencies and that any and all permits and bonds by such agencies are secured.

### 1.04 PRE-DESIGN CONFERENCE

Prior to the development of a Preliminary Plan and/or detailed Engineering Plans and Specifications the Design Engineer shall meet with the Director of Building and Zoning and other staff as may be necessary to review County requirements and the proposed project. The owner shall submit a site development permit to fulfill the requirements of the Stream Buffer Regulations in Article VII. The design engineer shall prepare a plat drawn to an engineering scale showing the street layout and any other major appurtenances as may be necessary. The request for this preliminary meeting shall be instituted by the Design Engineer. (7-20-2010)

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### 1.05 PLAN PREPARATION REQUIREMENTS

- A. Concept Plan - The concept plan shall be drawn to an engineering scale and shall show the conceptual configuration of the proposed subdivision including the location of streets, lots, drainageways, ponds, land uses and any existing natural features such as streams or lakes. A short narrative shall also accompany the drawing dealing with proposed public improvements such as water supply and wastewater treatment.
- B. Preliminary Plan and Supporting Documents
  - 1. Required Form of a Preliminary Plan

Plans, drawings, surveys, maps, schematics and comparable material shall be drawn so that clear and legible transparent or contact prints and photostatic copies can be made with a maximum width of twenty-four inches (24") (594cm), with a maximum length of thirty-six inches (36") (841cm). If the total preliminary plan exceeds one sheet, then an additional drawing, showing the entire area of the preliminary plan, drawn to a smaller scale shall be provided to show the general layout.
  - 2. Required Content of a Preliminary Plan and Supporting Documents.
    - a. Identification and Description
      - 1. Name of the subdivision, not duplicating the name of any other subdivision, the final plat of which has been recorded in McLean County, Illinois;
      - 2. The legal description of all property included in the Preliminary Plan, including a reference to the Section, Township and Range;
      - 3. The name, address, and telephone number of the owner or owners of record of all property within the Preliminary Plan;
      - 4. The name, address, and telephone number of the developer of the proposed subdivision;  
Disclosure of the legal relationship, if any, between the owner and developer, including any of the following:
        - i. Agent of owner;
        - ii. Purchaser under a Contract for Sale with owner, contingent or otherwise;
        - iii. Unrecorded owner; and
        - iv. Contract purchaser.
      - 5. The name, address, and telephone number of the engineering firm preparing the boundary survey;

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6. The name, address, telephone number and seal of the Registered Engineer preparing any part of the Preliminary Plan or supporting material;
7. The name, address, and telephone number of the attorney(s) representing the owner(s) and/or developer(s);
8. The source of all topographic data;
9. Total acreage (hectares) of the Preliminary Plan; and
10. All notices as shown in Appendix A.

b. Survey Maps and Drawings Indicating Existing Conditions

A Registered Illinois Land Surveyor or Registered Professional Engineer shall prepare graphic presentations of the following in each case, with a north point designated as true North and a date of preparation indicated on the survey map, drawing or plan. Unless otherwise noted, the following shall be drawn to an engineering scale not to exceed 100 feet to 1 inch (1000:1)

1. Boundary Line Survey Map with accurate distances and angles with a permissible error of closure of 1 in 5000 prepared and certified accurate by a Registered Illinois Land Surveyor;
2. Topographic map depicting existing contours at vertical intervals of not more than two (2) feet (.5 meters), with reference to U.S.G.S. Datum;
3. Location and perimeter of any area designated as a special flood hazard area as defined by the Federal Emergency Management Agency. If any part of a proposed subdivision lies within an area delineated on the federal Flood Insurance Rate Maps for the County as a Special Flood Hazard Area the base flood elevation shall be furnished by the subdivider. If the property included in the preliminary plan is not in a special flood hazard area, the Surveyor or Engineer shall so state on the preliminary plan.
4. The existing zoning and zoning district lines within the area encompassed by the Preliminary Plan and the area within two hundred (200) feet (60 meters) thereof;
5. Specific identification, location and dimensions, if applicable, of the following located within two hundred (200) feet (60 meters) of the area included in the Preliminary Plan:
  - i. Rights-of-way;
  - ii. Streets;
  - iii. Roadways;
  - iv. Drainageways; improved;

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- v. Drainageways; unimproved;
  - vi. Walkways;
  - vii. Sidewalks;
  - viii. Public easements;
  - ix. Private easements;
  - x. Railroad rights-of-way;
  - xi. Section lines;
  - xii. Corporate limit lines;
  - xiii. Parks, schools, and other public lands;
  - xiv. Buildings and structures to remain; and
  - xv. Buildings and structures to be removed.
6. Identification, location, size, effective drainage area, gradient and invert elevation of sanitary sewers, storm sewers, drainage culverts, catch basins and sanitary and storm sewer manholes located within or which pass through the area included in the Preliminary Plan, or within two hundred (200) feet (60 meters) of the perimeter of the area included in the Preliminary Plan;
  7. Identification and location of water mains, including all valves and hydrants and any other underground utilities located within the area included in the Preliminary Plan, or within two hundred (200) feet (60 meters) thereof;
  8. Location of or reference to location of the boundary line survey map and bench marks;
  9. Location map drawn to a scale of not less than one (1) inch equals one thousand (1000) feet (1000:1), showing the area bounded by the nearest major or arterial street, but not less than two (2) miles (3km) beyond the boundaries of the area included in the Preliminary Plan;
  10. The location of any known private or public sewage disposal systems within the area included in the Preliminary Plan and within two hundred (200) feet (60m) thereof; and
  11. The location of any public or private water wells and water distribution systems located within the boundary of the Preliminary Plan or within two hundred (200) feet (60m) thereof.
- c. Surveys, Maps, Plans and Drawings of Proposed Conditions

A Licensed Professional Engineer shall prepare and certify as accurate to the degree of accuracy specified, all surveys, maps, plans and drawings. All such surveys, maps, and drawings shall have a north point designated as true north and containing a date of preparation depicting the proposed arrangement of the area

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included in the Preliminary Plan indicating each of the following to an engineering scale not to exceed one hundred (100) feet to one (1) inch (1000:1);

1. Identification, location and dimensions of any of the following required or proposed:
  - i. Rights-of-way
  - ii. Interior streets, exterior streets, and exterior roadways with approximate elevations, proposed gradients, and typical cross-sections;
  - iii. Street and roadway names, not duplicating or confusingly similar to the name of any street on a final plat recorded in the County, unless the street is an extension of, or in line with a previously named street, in which event such name shall be used;
  - iv. Pedestrian ways, sidewalks, and walkways;
  - v. Public and private easements;
  - vi. Lots and outlots;
  - vii. Minimum front yard building setbacks;
  - viii. Railroad crossings and rights-of-way;
  - ix. Bridges; and
  - x. Areas other than those listed above intended to be dedicated or reserved for non-residential purposes.
2. Identification, location and size of any of the following required or proposed:
  - i. Water mains;
  - ii. Valves;
  - iii. Hydrants; and
  - iv. Street lights.
3. Identification, location size, gradient, invert elevation, and typical cross-section of any of the following required or proposed in the area included in the Preliminary Plan:
  - i. Drainage ways, improved;
  - ii. Drainage ways, unimproved;
  - iii. Storm drains; and
  - iv. Open drainage ways.
4. Identification, location, size, gradient, surface elevation, and invert elevation of any of the following required or proposed in the Preliminary Plan:

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- i. Sanitary Sewers;
  - ii. Storm sewers;
  - iii. Collection tile systems; and
  - iv. Manholes and cleanouts.
5. Direction of storm water runoff from each lot and outlot proposed or required in the Preliminary Plan.
- d. The Preliminary Plan shall contain the name and seal or seals of the professional engineer or engineers preparing all or any portion of the Preliminary Plan. All waivers requested of the Ordinance shall be listed on the Preliminary Plan. Approval of a Preliminary Plan shall not constitute waiver of any applicable Ordinance unless specifically approved by the County Board.

### C. PUBLIC IMPROVEMENT ENGINEERING PLANS AND SPECIFICATIONS

1. Required Form of Public Improvement Engineering Plans and Specifications
  - a. Public improvement engineering plans and specifications, drawings, schematics and comparable materials shall be drawn with black waterproof drawing ink on mylar from which clear and legible transparent or contact prints and photostatic copies can be made. All drawings shall be submitted on 24" x 36" (594x841 cm) sheets.
  - b. Supporting material shall be typed on paper not exceeding 8 1/2 inches by 11 inches in size.
  - c. General drafting requirements
    1. Plan sheets shall be drawn to a scale of not less than 1"=50' (1:600) horizontal and 1"=10' vertical. The scale shall be clearly labeled on the plans;
    2. Plan sheets shall include a north arrow. The arrow should be oriented to the left, top, or right of the sheet;
    3. Plan sheets shall include a title block in the lower right corner of the sheet and shall include the name and address of the design engineer, the date of the drawing and the sheet number; and
    4. Stationing shall normally increase from left to right.
2. Required Content of Public Improvement Engineering Plans and Specifications

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- a. Identification and Description - The public improvement engineering plans and specifications shall include a Title Sheet containing the following information:
  - 1. The name of the proposed subdivision within which or for which the public improvements are proposed;
  - 2. The name, address and telephone number of the developer;
  - 3. The name, address and telephone number of the engineering firm preparing any part of the engineering plans and specifications and an indication of the part of the plans that engineer or engineers prepared;
  - 4. Seal or seals of the design engineer or engineers preparing all or any portion of the engineering plans and specifications certifying that the materials so prepared conform with all applicable County ordinances except as specifically noted as a requested waiver;
  - 5. Location map drawn to any scale showing area bounded by the limits of the Preliminary Plan for which the engineering plans were prepared;
  - 6. Two or more benchmark elevations referenced to U.S.G.S. datum within the boundaries of the project or within 100 feet (30 meters) outside the boundaries of the project; and
  - 7. An index to all sheets contained within the submitted engineering plans.
- b. Grading Plan - The public improvement engineering plans and specifications shall include a Grading Plan. Said plan shall contain, but not be limited to, the following information:
  - 1. Existing contours at vertical intervals of not more than two (2) feet (.5 meters), with reference to U.S.G.S. datum;
  - 2. Proposed finished ground surface elevations on all corners;
  - 3. Directional arrows of flow of surface water;
  - 4. Elevation of proposed surface at all building sites (pad);
  - 5. Location, description, and surface elevation of all drainage structures;
  - 6. Directional arrows of flow for flood routing for design storms which exceed the capacity of the proposed storm sewers (minimum of 50 year frequency design storm); and
  - 7. Typical cross sections of flood routing channels showing maximum depth of flow.
- c. Drainage Way Plan - The public improvement engineering plans and specifications shall include a Drainage Way Plan (if applicable) containing, but not limited to, the following information:

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1. Existing contours at vertical intervals of not more than two (2) feet (.5 meters), with reference to U.S.G.S. datum;
  2. Proposed alignment of centerline of right-of-way and right-of-way width for the entire length of the proposed improvement and existing alignment for 200 feet ( 60 meters) upstream and downstream of the improvement;
  3. Proposed and existing profiles for entire length of the improvement and existing profile for 200 feet (60 meters) upstream and downstream of the improvement;
  4. Typical cross-section of the drainageway improvement; and
  5. Cross-sections of the improvement at intervals of fifty (50) feet (15m) showing the before and after 100 year flood surface elevation.
- d. Erosion and Sediment Control Plan - The public improvement engineering plans and specifications shall include a plan for controlling erosion and sedimentation for the entire duration of the project. Said plan shall show the following:
1. All erosion and sedimentation control measures necessary to meet the requirements of the ordinance throughout all phases of construction;
  2. Proposed seeding mixtures and rates, types of sod, method of seedbed preparation, expected seeding dates, type and rate of lime and fertilizer, application, and kind and quality of mulch for both temporary and permanent vegetative cover;
  3. The type and location of all temporary sedimentation control measures;
  4. Provisions for maintenance of sedimentation control measures; and
  5. The name of the person(s) responsible for installation and maintenance of the erosion control measures.
- e. Street and Sidewalk Plan - The public improvement engineering plans and specifications shall include a "Street Plan". As sidewalks are not required in county subdivisions, should they be provided they shall be positioned on private property immediately behind the right-of-way line. Said plan shall contain, but not be limited to, the following information:
1. Existing and proposed horizontal street alignments showing centerline, right-of-way, and stationing of all roadways;
  2. Existing and proposed profiles of pavement referenced to centerline stationing and U.S.G.S. datum;

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3. Should sidewalks be provided, the proposed alignment of sidewalks or walkways showing the edges of the sidewalk;
  4. Existing and proposed cross-sections of roadways at an interval of 50 feet (25 m); and
  5. Curve data for both horizontal and vertical alignments of all existing and proposed roadways including the station and elevation of the low point on sag curves.
- f. Storm Sewer Plan - The public improvement plans shall include a "Storm Sewer Plan". Said plan shall include, but not be limited to, the following:
1. Alignment and location of existing and proposed storm sewer conduits referenced to stationing;
  2. Location and identification of all existing and proposed drainage structures;
  3. Size of existing and proposed conduits;
  4. Profile of proposed conduits showing invert elevations based on U.S.G.S. datum and crossings of other existing and proposed utilities; and
  5. Locations along alignment of proposed conduit of granular trench backfill placement.
- g. Sanitary Sewer Plan - Should a public or private sanitary sewer system be provided the public improvement engineering plans and specifications shall include a Sanitary Sewer Plan. Said plan shall include, but not be limited to the following:
1. Alignment and location of existing and proposed sanitary sewer conduits referenced to stationing;
  2. Location and identification of all existing and proposed manholes;
  3. Location and identification of all proposed sewer services;
  4. Size of existing and proposed sewer conduits and services;
  5. Profile of proposed sewer conduits showing invert elevations based on U.S.G.S. datum and crossings of other existing and proposed utilities; and
  6. Locations along alignment of proposed sewer conduits and services of granular trench backfill placement.
- h. Water Main Plan - Should the subdivision be served by a public or private water supply, the public improvement engineering plans and specifications shall include a Water Main Plan. Said plan shall include, but not be limited to, the following:

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1. Alignment and location of existing and proposed water main conduits and service lines referenced to stationing;
  2. Location and identification of all existing and proposed valves and hydrants;
  3. Location and identification of proposed service lines;
  4. Size of existing and proposed water main conduits and services; and
  5. Locations along the alignment of proposed water main conduits and services for granular trench backfill placement.
- i. Composite Utility Plan - A plan showing all proposed utilities must be submitted and approved as part of the construction plans for any proposed subdivision.
  - j. Specific Details - The public improvement engineering plans and specifications shall contain, but not be limited to, specific details of the following:
    1. Typical cross-sections of streets and right-of-way;
    2. Intersection details for concrete pavements showing joint locations, elevations, drainage structures and surface water flow; and
    3. Cul-de-sac details showing joint locations, drainage structures, surface water flow and centerline control.
  - k. Standard Details - The public improvement engineering plans and specifications standard shall include, but not be limited to, the following:
    1. Pavement and curb and gutter construction;
    2. Collection tile and sanitary sewer construction;
    3. Storm sewer construction; and
    4. Water main construction.

### D. FINAL SUBDIVISION PLATS AND SUPPORTING MATERIAL

1. Required Form of Final Plats
  - a. Final plats shall be drawn with black waterproof drawing ink on mylar, from which clear and legible transparent or contact prints and photo static copies can be made, the maximum sheet size shall be 24" x 36" (594x841cm).
  - b. Supporting materials shall be typed on paper not exceeding 8 1/2" x 11" in size.

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- c. Digital Submission: A digital computer aided drafting file shall be submitted in accordance with Section 1.19 of this manual.
- 2. Required Content of Final Plat
  - a. Identification and Description
    - 1. The name of the subdivision, not duplicating the name of any other subdivision of which a final plat has been recorded in McLean County, Illinois;
    - 2. The legal description of all property included in the final plat, including a reference to the section, township and range;
    - 3. The name(s) and address(s) of the developer(s) of the proposed subdivision;
    - 4. The name and address of the Professional Land Surveyor preparing the boundary survey;
    - 5. The total area in acres (hectares) of the final plat; and
    - 6. The name of the school district in which the development is located.
  - b. Lot, Outlot, and Public Improvement Configuration - A Licensed Illinois Land Surveyor shall prepare and certify as accurate angular and lineal dimensions of all lines, angles and curvatures to an engineering scale not to exceed 100 feet to 1 inch (1000:1) necessary to accurately depict the location of the following:
    - 1. Rights-of-way, including the names of any streets or roadways depicted;
    - 2. Public easements;
    - 3. Proposed lots of record consecutively numbered and keyed on the plat (or on a supplemental sheet) showing the lots platted of the approved preliminary plan;
    - 4. Outlots, indicated consecutively and keyed on the plat (or on a supplemental sheet) showing the outlots platted of the approved preliminary plan;
    - 5. Minimum front yard setbacks;
    - 6. Other areas dedicated or reserved to the public;
    - 7. Railroad rights-of-way;
    - 8. Boundaries of the subdivision;
    - 9. Field references to:
      - i. The nearest established street lines and monuments which shall be accurately described in the plat by location and size;

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- ii Township, section lines and 1/4 section lines if the same are within the boundary of the final plat or within one hundred (100) feet (30m) therefrom, referenced accurately to the lines of the subdivision by distances and angles. This requirement may be waived for the resubdivision of an existing final plat;
  - iii State plane coordinates; and
  - iv All monuments placed at all block corners, angle points and at intermediate points installed in such a manner that they may be located by a Professional Land Surveyor.
- 10. A signed statement by a Licensed Professional Land Surveyor stating which lots (if any) are located within a Special Flood Hazard Area; and
- 11. Chord distances for all curvilinear lot lines either on the plat or provided in a table on a separate sheet.
- c. Certificates - The final plat shall be accompanied by the following certificates duly and appropriately executed in substantially the form presented in the Appendix of the exhibit specified:
  - 1. Owners Certificate
  - 2. Surveyor's Certificate
  - 3. Drainage Certificate
  - 4. County Clerk Certificate
  - 5. Plat Officer Certificate
  - 6. Performance Bond
  - 7. Surety

### 1.06 SPECIFICATION REQUIREMENTS

Technical specifications shall be submitted with the public improvement engineering plans as required in this Ordinance and shall be complete in themselves, except that appropriate specific sections of the most recent edition of the "Standard Specifications for Road and Bridge Construction" and the latest edition of the "Supplemental Specifications for Road and Bridge Construction" as published by the Illinois Department of Transportation, and the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the various standard published material specifications prepared by associations such as the American Society for Testing and Materials and the American Water Works Association, may be incorporated by reference.

The specifications shall include, but not be limited to, all information not shown on the drawings which is necessary to establish in detail the quality of materials and workmanship required in the project, other parameters for testing the various parts of the project and instructions for testing material and equipment.

## McLEAN COUNTY MANUAL OF PRACTICE

Special provisions specific to construction within the County are specified in the various chapters of this manual and are to be used as guide for the preparation of specifications to be submitted to the County Engineer for review and approval.

### 1.07 DESIGN COMPUTATION REQUIREMENTS

- A. Design computations shall be made by the Design Engineer for all phases of the project when such computations are required by this manual or by the County Engineer to insure the adequacy and stability of the work. Said computations shall be neat and legible and in a form required by this manual and that can be readily followed and understood by a competent engineer experienced in the field.

Said computations will include, but not be limited to the following:

1. Submitted with Subdivision Preliminary Plan: Preliminary design calculations used by the Design Engineer for the following:
    - a. Detention basin design;
    - b. Storm sewer system design; and
    - c. Sanitary sewer designThese requirements may be deferred or waived at the time of submission of the preliminary plan with the consent of the County Engineer.
  2. Submitted with Public Improvement Engineering Plans: Detailed design calculations for the following:
    - a. Detention Basin design;
    - b. Storm sewer system design;
    - c. Sanitary sewer system;
    - d. Flood routing and waterway design;
    - e. Bridge and culvert hydraulic design;
    - f. Coordinate geometry calculations for public right-of-ways;
    - g. Traffic generation data; and
    - h. Structural design data.
  3. Submitted with Final Subdivision Plats
    - a. Boundary closure calculations;
    - b. Lot corner coordinate data in digital format; and
    - c. Ties to GIS monuments.
- B. The form and content for each set of detailed design computations submitted with Public Improvement Engineering Plans and Final Subdivision Plats are Specified in the following chapters of this manual.

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### **1.08 ESTIMATE REQUIREMENTS**

The Design Engineer shall prepare a detailed estimate of the cost of the work, categorized to show the various divisions of the work, including engineering costs as a separate item, itemized in such a fashion as to make possible a comparison of the estimated cost with actual cost encountered for similar work in the past.

Estimates of cost will be required as follows:

- A. Submittal of public improvement engineering plans and specifications to the County Engineer for approval;
- B. Prior to release of funds from escrow accounts posted as security for payment, performance, and workmanship guarantees by the County Engineer;
- C. Prior to reductions in letters of credit posted as security for payment, performance, and workmanship guarantees by the County Engineer; and
- D. Submittal of final subdivision plats for approval.

A sample form of the estimate of cost is provided in the Appendix of this manual.

### **1.09 OTHER PERMIT APPLICATIONS AND APPROVALS**

Other governmental agencies may review and approve for construction all or certain parts of the work included in a project and may require a permit or application for a permit for such work. They may also require that such a permit or application for a permit be executed by the County. When such a permit or permit application is required, it shall be prepared by the Design Engineer, ready for signatures and containing all required supporting documentation.

### **1.10 PUBLIC IMPROVEMENT ENGINEERING PLANS AND SPECIFICATIONS SUBMISSION AND REVIEW PROCEDURE**

These documents requiring County approval shall be submitted by the Design Engineer to the Director of Building and Zoning, with a letter of transmittal tabulating the items being submitted. The documents to be approved and the number required by the County are set out below. The Design Engineer shall add to the documents the quantity he would like returned to him marked approved on their face, or in the case of permit applications, executed by the County for submission to other agencies.

The submittal shall be made in two parts. The initial submittal should be made and returned to the Design Engineer prior to the final submittal.

Documents included in the initial submittal are as follows:

- |    |                     |        |
|----|---------------------|--------|
| A. | Plans               | 3 sets |
| B. | Specifications      | 3 sets |
| C. | Design computations | 1 set  |

## **McLEAN COUNTY MANUAL OF PRACTICE**

After completion of the review of the initial submittal, the County Engineer will advise the Design Engineer by letter of any items that do not meet the requirements of the Ordinance or this Manual. The Design Engineer may then revise the documents and make the final submission.

Documents in the final submittal shall include the following:

- A. Plans 3 sets
- B. Specifications 3 sets
- C. Estimate 1 set
- D. 1/4 size copy of grading plan 1 set

When the final submittal meets all requirements, the County Engineer shall transmit his written approval of the submitted documents to the Design Engineer and the Director of Building and Zoning.

### **1.11 APPROVAL PERIOD**

Approval of the improvement engineering plans and specifications by the County Engineer shall be applicable for a period of three (3) years from the approval of a preliminary subdivision plan. If construction is not commenced within said three (3) year period, the approval will be void. Reactivation of such voided approvals will require a written request to the Committee for extension which will be considered with due consideration given to any new requirements that may be established by the County.

### **1.12 GUARANTEE BY DEVELOPER**

The developer shall guarantee that all work in the project shall be free from defects in workmanship and materials and in conformance with the approved plans and specifications in accordance with the Subdivision Ordinance.

### **1.13 PLAN REVIEW, INSPECTION AND TESTING FEES**

In accordance with the Subdivision Ordinance and prior to the County Engineer transmitting his approval of the public improvement engineering plans and specifications and prior to the recording of the final plat, the developer shall pay to the County a fee of two percent (2%) of the approved estimated costs of such improvements. Said fee shall be applied as credit against the actual costs incurred by the County Engineer for review of said plans and the inspection and testing of said improvements.

The Developer shall pay the balance of the actual costs to the County at the time such review and inspection has been completed by the County Engineer and prior to any acceptance of the improvements for maintenance.

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### **1.14 REVISIONS TO APPROVED PUBLIC IMPROVEMENT ENGINEERING PLANS AND SPECIFICATIONS**

Any deviations from approved plans or specifications affecting capacity, stability or operation of the improvements shall be approved in writing by the County Engineer before changes are made. Minor changes not affecting capacity, stability or operation of the improvements will not require formal approval but must be approved by the field inspector representing the County Engineer.

### **1.15 INSTALLATION AND INSPECTION PROCEDURES**

Prior to construction commencing, the Design Engineer/Developer may arrange with the County Engineer a time and place to conduct a pre-construction meeting with representatives of contractors, and utility companies present.

### **1.16 RECORD DRAWINGS**

A. Grading Plan - The Design Engineer shall submit to the County Engineer for approval, a record drawing of the Grading Plan which is required by Section 1.05 of this Manual. The record drawing submitted shall be one clear and legible transparent mylar and one photostatic print of the Grading Plan approved and shall depict actual ground surface elevations on all lot corners and building sites (pads) in addition to the proposed elevations.

B. Public Improvement Plans

The Design Engineer shall submit to the County Engineer, within nine (9) months of acceptance for maintenance, record of the public improvement engineering plans. Final release of the subdivision bond will not be made until the County Engineer has received the record drawings. Record drawings submitted shall be one set of clear and legible transparent mylar, one set of photostatic prints and one digital computer aided drafting file in accordance with the provisions of Section 1.19 of this manual. This submittal shall be of the entire set of the approved public improvement plans and shall depict the improvements as actually installed or constructed.

The Design Engineer will receive from the Highway Department, all inspection reports required to prepare the record drawings adequately. The inspection reports will be available to the Design Engineer after the improvements have been inspected and tested.

### **1.17 PROJECT COMPLETION AND FINAL ACCEPTANCE**

Prior to the County Engineer recommending that the Road District accept the project for maintenance, the County Engineer and the Township Road Commissioner shall make a final inspection of the completed work. The County Engineer shall then prepare a final

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punch list, itemizing all items not meeting the requirements of the approved plans and specifications. On the completion of all items listed in the final punch list to the satisfaction of the County Engineer and the Township Road Commissioner, the Road Commissioner shall then accept the roads for maintenance.

### 1.18 WAIVER FOR MANUAL REQUIREMENTS

Where conditions so warrant, and for valid engineering reasons the County Engineer may waive any portion of the requirements of this manual.

### 1.19 ELECTRONIC DRAFTING FILE STANDARDS

- A. Purpose. The purpose of these specifications is to provide a standard for the transfer media and the format of the data files for submission to the County Engineer. The goal is to save the County, consultants and developers time and money by providing a set of CAD (Computer Aided Drafting) standards that will allow for easier referencing and combining of files from one or more designs or sets of field data. By following these standards, files will be uniform allowing for quicker access and editing of files produced at any time or by different people. It will also allow the County to automate the process of adding data to the Geographic Information System.
- B. Electronic Files Required. Electronic files shall be provided when submitting final copies of:
  - 1. Engineering Plan Sheets
    - a. Title Sheet;
    - b. Street plan and profile;
    - c. Storm sewer plan and profile;
    - d. Sanitary sewer plan and profile; and
    - e. Structure plans.
  - 2. Final Plats
  - 3. Record Drawings
- C. Media. Files may be submitted on 3 1/2-inch diskette, Iomega 100 MB Zip Diskettes or CD-ROM. Files on floppy may be zipped as long as they are self extracting or the extraction utility is provided. All files and media are to be in an IBM compatible format.
- D. CAD Standard. This CAD (Computer Aided Drafting) standard is based on the I.D.O.T. (Illinois Department of Transportation) drafting standards where feasible.

Files submitted shall be AutoCAD DWG files. The files shall have the following properties:

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1. The Global Origin shall be set to the lower left of the design plan.
2. Files shall be 3D design files
3. Working units shall be metric. 1000 sub units (mm) per master unit (m). One sub unit per positional unit. Master units shall be designated m for meters. Sub units shall be designated mm for millimeters. Dimensions placed in the design files shall be in English units but the working units shall be metric.
4. The actual working plat or design project shall use Illinois State Plane East Zone Metric coordinates, USGS Zone 3776, FIPS Zone 1201, Projection will be Transverse Mercator. The USGS Datum will be, horizontal NAD 83 and Vertical NGVD 29. The plat or project shall properly edge match to adjoining plats or designs.
5. Design files shall be compressed, to remove deleted elements before submittal.
6. Reference files used shall be in the same subdirectory as the active design file. The attachment of the reference files done shall be set with "Save Full Path" off. The main working design file shall not contain any reference files.
7. Element attributes/symbology shall be in accordance with the following table:

**CHAPTER 2 – Protection and Restoration**

**2.01 INTRODUCTION**

Public improvements required in connection with a subdivision or development are often in or adjacent to areas with existing surface or underground improvements. This chapter specifies special requirements relative to the construction of proposed improvements and restoration of existing improvements affected by the construction. Plans and specifications presented for approval shall provide for the implementation of the requirements of this chapter.

**2.02 SPECIFICATIONS AND SPECIAL PROVISIONS**

All public improvement projects shall be completed in accordance with all applicable sections of the most current editions of the Illinois Department of Transportation's "Standard Specifications for Road and Bridge Construction", the "Supplemental Specifications for Road and Bridge Construction", the "Standard Specifications for Water and Sewer Main Construction in Illinois" and any amendments, additions or other requirements contained therein.

**A. Protection**

1. Traffic Control - All work within the public right-of-way shall be completed in accordance with the latest edition of the "Manual on Uniform Traffic Control Devices" as published by the Illinois Department of Transportation. The provisions of this Manual will be enforced whenever work is in progress within the existing roadway or adjacent to it or as required by the proper highway authority.

Lane closures will be required whenever construction is performed or vehicles are parked in a lane normally used for through traffic. Written permission for all lane closures must be obtained from the proper highway authority.

Required signing shall be in strict conformance with the manual cited above. No construction shall commence until such time that all required signs and barricades have been erected. The contractor shall also be responsible for contacting police, fire and school authorities of any closure.

2. Bracing and Sheeting - Open cut trenches shall be sheeted and braced as required by any governing federal or state laws and municipal ordinances, and as may be necessary to protect life, property and the work.
3. Trench Side Slopes - The contractor may, where working conditions and right-of-way permit, excavate pipeline trenches with sloping sides only above the top of the conduit.

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4. Tunneling - Contractor may utilize short tunnels to avoid obstructions such as trees, fire hydrants, sidewalks and curbs.
5. Stockpiling of Excavated Material - All excavated material shall be stockpiled such that it will not endanger the work and will avoid obstructing streets, sidewalks, driveways, watercourses, fire hydrants, valve pit covers, valve boxes, curb stops and other utility controls.
6. Protection of Property and Structures - Any existing or new property or structures disturbed or damaged during construction shall be replaced or repaired to the satisfaction of the owner, at the contractor's expense.
7. Utilities - The utility companies shall be notified of a proposed project and the plans should indicate the general location of the utility main lines. It shall be the contractor's responsibility before beginning any construction to obtain from all utilities the exact locations of all underground facilities in the area of construction, whether shown on the plans or not. Any facilities disturbed by the contractor shall be repaired at the contractor's expense. J.U.L.I.E. (Joint Utility Location and Identification for Excavators 800-892-0123) is the utility locating service in this area. Any facility disturbed by the contractor shall be repaired at the contractor's expense.  
Businesses and residences shall be notified a minimum of 24 hours in advance of any impending outages. No business or residence shall be without service overnight.

### B. RESTORATION

The contractor shall restore all public facilities, including but not limited to, pavements, sidewalks, driveways, curbs, gutters, trees, shrubs, lawn, fences, poles and other structures and property removed or disturbed during or as a result of construction operations to a condition which is equal in appearance and quality to the condition that existed before the work began.

Removal and Replacement of Pavements, Sidewalks, Curbs, Gutters, and Driveways - All removal and replacement shall be completed in accordance with all applicable sections of the "Standard Specifications for Road and Bridge Construction" and any special provisions contained herein. When removal is required for the installation of a conduit, the width of the removal shall exceed the actual trench width by one (1) foot (300mm) on each side. Removal of PCC sidewalk, pavement, driveways, curb and gutter shall be to the nearest joint unless otherwise directed by the Engineer. For all PCC replacements, Class X concrete meeting the requirements of the "Standard Specifications for Road and Bridge Construction" shall be used.

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1. Pavement Replacement - The type of removal and replacement shall be classed as follows:

Type A patches shall apply to pavements that have existing aggregate base and bituminous surface.

Type B patches shall apply to pavements that have existing concrete base and bituminous surface, brick base and bituminous surface or bituminous base and bituminous surface.

Type C patches shall apply to existing pavements that have existing brick surface or concrete surface. Reinforcement will be required where the existing pavement is presently reinforced.

Type D patches shall apply to existing pavements that have existing brick surface that a municipality may have designated to be preserved.

- a. Removal Limits - The limits of the pavement repair shall be saw cut in a rectangular pattern to a depth of not less than three (3) inches (75mm). Type A patches shall be a minimum of three (3) feet (1m) in width. Type B and Type C patches shall be a minimum of five (5) feet (1.5m) in width. For Type B and Type C patches the new pavement shall be shouldered one (1) foot (300mm) minimum on all sides of the excavation on undisturbed ground.

Whenever a series of Type A or Type B patches are made in such a manner so as to leave less than five (5) feet (1.5m) of undisturbed bituminous surface between adjacent patches, it shall be required that the bituminous surface between the patches be removed and the entire area resurfaced.

PCC pavements shall be repaired in accordance with the typical detail shown for Type C patching. Whenever a pavement patch is less than four (4) feet (1.3m) from the pavement edge, contraction joint, crack, etc., the pavement patch shall be enlarged to meet the edge, joint or crack and the entire excavated area paved as one patch.

The limits of the pavement removal on all PCC pavements shall be extended to the nearest contraction or expansion joint.

The limits of pavement removal on Type D patching shall be in such a manner that whole bricks will be used in the replacement and that the replaced brick course extends beyond the limits of the concrete base course.

- b. Trench Backfill - All utility trenches shall be a minimum of 18 inches (450mm) in width and shall be backfilled with trench

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backfill. Trench backfill shall be required to a width not less than five (5) feet (1.5m) outside the edge of pavement on streets with a rural cross-section or two (2) feet (.5m) behind the curb for an urban cross-section. Material for trench backfill shall comply with Article 1003.04 of the Standard Specifications. With the approval of the County Engineer, "controlled low strength material" may be used in lieu of aggregate for trench backfill.

- c. **Compaction of Trench Backfill** - Porous granular material shall be placed full width in all utility trenches in layers not to exceed 6 inches (150mm) in thickness and compacted by mechanical means. The porous granular material shall extend to the existing ground level but not higher than the subgrade elevation.  
With approval of the County Engineer, the contractor may compact the trench backfill by means of jetting. Should jetting be used, all trenches shall be allowed to dry before any base course or surface may be constructed.
- d. **Temporary Asphalt Surface** - After completion of backfilling the excavation, a temporary asphalt surface shall be placed as soon as possible or as directed by the local highway authority with a minimum thickness of 3 inches (75mm). The excavation contractor shall maintain this surface until the permanent patch is constructed.
- e. **Traffic Control** - Traffic control procedures and guidelines set forth in Section 1084 of the "Standard Specifications for Road and Bridge Construction" and all applicable sections of the "Manual on Uniform Traffic Control Devices" shall be followed to the fullest extent.
  - i. On major and collector streets, not more than one-half the width of the street may be closed to traffic except during the actual excavating and laying operations.
  - ii. Not more than one-half the width of the street may be closed to traffic during the construction and curing of the permanent pavement patch.  
Steel plates may be used for Type B patches to bridge the utility trench patch during the curing period for the PC concrete base course in order to open the traffic lane to traffic during this period.
  - iii. High-Early Strength P.C. Concrete may be used to lessen the curing time from 7 days to 72 hours.

2. **Driveway Replacement** - The type of replacement required shall depend on the existing type:

- a. An existing concrete driveway shall be replaced with a Portland Cement Concrete surface six (6) inches (150mm) thick

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- b. An existing bituminous surface driveway shall be replaced with an eight (8) inch (200mm) aggregate base and three (3) inches (75mm) of bituminous concrete surface.
  - c. An existing aggregate driveway shall be replaced with eight (8) inches (200mm) of aggregate with the top four (4) inches (100mm) being the same material as the existing.
- 3. Sidewalk Replacement - Sidewalk shall be replaced to the same depth and width as the existing unless otherwise directed by the Engineer. One-half (1/2) inch (12mm) thick preformed expansion joints shall be placed at locations abutting existing work and at 50-foot (15m) intervals in the new walk.
- 4. Curb and Gutter Replacement - Curb and gutter shall be replaced to the dimensions and cross-section as the existing. One-half (1/2) inch (12mm) thick preformed expansion joints shall be placed at the junction of the existing work and at all points of curvature.
- 5. Field and Drain Tile Replacement - All existing drain tile lines which cross the trench of a proposed sanitary sewer, storm sewer, water main and services shall be accurately recorded and marked in the field by the contractor. Upon completion of the installation of the underground utilities, the contractor shall furnish a copy of all drain tile locations to the Engineer. The Engineer shall analyze these locations and determine if the tiles should be re-connected, connected to the storm sewer or any other tile line which may be in the area or be rerouted through drainage easements to acceptable outlets. All tiles crossing the proposed road right-of-way shall either be replaced and approved by the Engineer or shall be removed to a point five (5) feet (1.3m) outside of the proposed right-of-way line.

All drain tile lines reconstructed or connected to a storm sewer system or collection tile system shall be constructed of either PVC water main with slip-on joints up to twelve (12) inch (300mm) or reinforced concrete storm sewer pipe of Class 3 or Class 4 as required by depth in accordance with the "Standard Specifications for Road and Bridge Construction". Drain tiles not reconnected shall be plugged in an approved manner as directed by the Engineer.

Drain tiles to be reconnected shall be repaired so that their carrying capacity shall not be impaired. Drain tile shall be repaired with PVC SDR 26 pipe, a minimum of two (2) inches (50mm) larger diameter than the severed tile. The length of the plastic pipe shall be such that it bears a minimum of two (2) feet (.6m) on undisturbed soil on each side of the trench, with each field tile to plastic pipe junction encased in concrete. All repairs shall be inspected and approved by the Engineer prior to backfilling. Compacted granular backfill shall be required. The plastic pipe to drain tile junction shall be wrapped with burlap or other material

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approved by the Engineer prior to encasement to prevent concrete from entering the flow line of the pipe.

6. Restoration of Vegetative Areas - All vegetative areas disturbed during construction shall be restored by furnishing and placing topsoil to a minimum depth of four (4) inches (100mm) and seeding and mulching of the area in accordance with the "Standard Specifications for Road and Bridge Construction" or other written specifications or as directed by the Engineer.
7. Cleanup - Before acceptance of underground conduit construction, all pipes, manholes, catch basins, fire hydrants, and other appurtenances shall be cleaned of all debris and foreign material.

### C. SPECIAL PROVISIONS MODIFYING STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS

#### 20-2.18 Construction in Easements - Add the following:

The top six (6) inches (150mm) of any ground disturbed due to construction on private property in an inhabited area shall be replaced with topsoil and restored to its original condition.

##### 20-2.18 A. AGRICULTURAL SURFACE RESTORATION

At locations as shown on the plans or designated by the Engineer, the contractor shall restore any and all agricultural areas. Prior to the installation of the proposed pipes, the contractor shall remove all topsoil from the construction area and stockpile it along the edge of the working limits.

Upon the completion of the installation of the pipes and placing of the subsoil backfill, the contractor shall replace the original topsoil over the top of the disturbed area so that the finished surface shall be level and smooth and contain all of the original topsoil at approximately the same depth as prior to construction.

##### 20-2.18 B. REMOVAL OF SOIL FROM AGRICULTURAL AREAS

No soil will be removed from the areas designated for agricultural surface restoration without the express written consent of the owner or his designated representative.

**CHAPTER 3 – General Subdivision Design Standards**

**3.01 INTRODUCTION**

All subdivisions shall be designed to conform to the planning principles, layout and design requirements of this section of the Manual. These principles and design requirements concern entire systems rather than individual elements of the system, and so express concepts rather than specific standards. Specific standards are elaborated in other chapters of this manual.

**3.02 SUBDIVISION PRINCIPLES OF PLANNING**

Basic principles exist which should be recognized and heeded in designing circulation and access patterns in new subdivisions of conventional layout.

Basic consideration in the design of local circulation systems must recognize the factors of: (1) Safety - for both vehicular and pedestrian traffic, (2) efficiency of service - for all users, (3) livability or amenities - especially as affected by traffic elements in the circulation system, and (4) economy - of both construction and use of land.

Each of the following principles is an elaboration on one or more of these four factors. The principles are not intended as absolute criteria since instances may occur where certain principles conflict. The principles should, therefore, be used as guides to proper system layout.

- A. Adequate vehicular access should be provided to all parcels.
- B. Local street systems should be designed to minimize through-traffic movements.
- C. Street patterns should minimize "out-of-the-way" vehicular traffic.
- D. Local street systems should be logical and comprehensible, and systems of street names and house numbers should be simple, consistent and understandable and not duplicate any existing street name recorded in the office of the County Recorder.
- E. Local circulation systems and land development patterns should not detract from the efficiency of major and collector streets.
- F. Elements in the local circulation system should not have to rely on extensive traffic regulation in order to function efficiently and safely.
- G. Traffic generators within residential areas should be considered in the local circulation pattern.
- H. Planning and construction of residential streets should clearly indicate their function.
- I. The local street system should be designed for a relatively uniform low volume of street traffic and to discourage excessive speeds.
- J. Pedestrian-vehicular conflict points should be minimized.
- K. A minimum amount of space should be devoted to street uses.
- L. There should be a minimum number of intersections.

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- M. The arrangement of local streets should permit economical and practical patterns, shapes and sizes of development parcels.
- N. Local streets should be related to topography from the standpoint of both economics, drainage and amenities.
- O. Open space areas should be provided, commensurate with the projected population density of the development.
- P. The street and pedestrian circulation pattern in a new residential subdivision shall be compatible with any land use plan adopted by the County.
- Q. A residential area should be conveniently accessible from major streets, however, access points should be limited in number and given special design consideration, and whenever possible, located where other features are not competing for driver attention.
- R. Driveways should be prohibited on arterial and collector streets in residentially zoned areas.
- S. Except in extreme cases, subdivisions shall be designed with two or more access points.
- T. A satisfactory relationship between proposed and existing development should be established in order to permit efficient and economic continuity of utilities and services.
- U. Public utilities should be existing or proposed by the developer of a size adequate to serve the proposed subdivision and any other future development they may be required to service.
- V. The general land use principles and planning standards should be applied to the subdivision as contained in any land use plan adopted by McLean County.
- W. The use of a cul-de-sac street shall be limited to situations where the natural topography or other factors dictate its use as the best engineering or design option.
- X. Interconnection with other developable land that adjoins the subject property shall be provided.

### 3.03 LAYOUT AND DESIGN REQUIREMENTS FOR PROPOSED LOTS OF RECORD AND OUTLOTS

- A. Subdivisions shall consist solely and exclusively of lots of record, outlots, easements, public rights-of-way and public improvements.
- B. All proposed lots of record shall front on and have access to a public street or roadway except as follows:
  - 1. Lots within a Planned Unit Development, as allowed, in accordance with regulations of the McLean County Zoning Ordinance.
  - 2. One (1) new lot resulting from the division of a tract of land containing twenty (20) acres (8 hectares) or more may have access to a public street by an easement of not less than twenty-five (25) feet (8m) in width provided that such lot contains one (1) permanent dwelling which existed at such location on the effective date of this Ordinance and provided that no boundary of said new lot shall be nearer than two hundred (200) feet (60m) to the right-of-way line of any public street.

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- C. All proposed lots of record shall meet or exceed the lot size, dimension and area requirements of any applicable zoning regulations of the County of McLean.
- D. Outlots may not be built upon or developed except as provided by the McLean County Zoning Ordinance.
- E. Rear, side and front yard easements shall be for the use of public and private utility companies ( gas, electricity, cable tv, water, sewer, etc. ) as provided herein.
- F. Where residential lots are abutting a collector or major street, a "no access strip" shall be depicted on such lots to prohibit vehicular access directly to such abutting collector or major street. A "no access strip" shall also be required for a distance of fifty (50) feet (15m) in each direction from any interior street intersection.
- G. Boundaries of the subdivision shall be drawn to meet or exceed the following standards:
  - 1. Error of closure of boundary line surveys shall not exceed 1:5000;
  - 2. Angular error shall not exceed  $\pm 20$  seconds;
  - 3. Lot line dimensions shall be shown in feet and hundredths (meters and thousandths of a meter) and;
  - 4. Angles occurring in any lot line between lot corners shall be shown in degrees, minutes and seconds; and
  - 5. Chord distances shall be shown either on the plat or on a table on a supplemental sheet.
- H. In general, lots shall be as nearly rectangular in shape as practicable.
- I. Dimensions of corner lots shall be large enough to allow for erection of buildings, observing the minimum front yard building setbacks required by the McLean County Zoning Ordinance from both streets.
- J. Lot depths, widths, and setbacks shall conform to the requirements set forth in the McLean County Zoning Ordinance.
- K. Depth and width of lots reserved or laid out for business, commercial, or industrial purposes shall be adequate to provide off-street parking facilities required for the type of use and development contemplated as regulated by the McLean County Zoning Ordinance.
- L. Side lot lines shall generally be perpendicular to the right-of-way line and shall be designated as such when not perpendicular.
- M. When a proposed subdivision borders undeveloped properties that could be developed, connecting stub streets shall be provided to adjacent properties so as to allow for a reasonable interconnecting street pattern.
- N. When a proposed subdivision borders on a property that has a county-approved preliminary plan or final plat, the proposed subdivision shall connect to all existing or proposed stub connections.
- O. When a developer wishes to final plat a proposed subdivision in phases from an approved preliminary plan, he shall, after final platting fifteen lots or twenty -five percent (25%) of the lots on the approved preliminary plan, whichever is less, provide a second completed connecting entrance to the subdivision. At the time a

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total of seventy percent (70%) of the lots on an approved preliminary plan is being final platted, the developer shall complete all connecting street improvements as approved in the preliminary plan.

### 3.04 LAYOUT AND DESIGN REQUIREMENTS FOR BLOCKS

- A. In residential subdivisions containing lots of less than one hundred fifty (150) feet in width the maximum block length shall not exceed one thousand two hundred (1200) feet. In subdivisions containing lots of one hundred fifty (150) feet or more the maximum block length shall not exceed two thousand (2000) feet. No blocks shall be less than three hundred (300) feet in length. Whenever practicable, blocks along major streets, collector streets, and arterial streets shall not be less than one thousand two hundred (1200) feet in length. In business or manufacturing districts the Committee shall determine the length of blocks.
- B. The shape of blocks shall be determined by topographical features, the basic street system and traffic patterns, lot depths, and areas designated for public and other non-residential land uses.
- C. Where a subdivision borders upon or is traversed by a railroad right-of-way, the Committee may require a street on one (1) or both sides of such right-of-way located approximately parallel to and at a distance removed from said right-of-way. The use of the intervening property shall be appropriate for the zoning district.

**CHAPTER 4 – Design and Construction Standards for Streets**

**4.01 Introduction**

All lots in any subdivision, regardless of size, shall front on and have access to a public or private street. When necessary, streets shall be included as part of the subdivision and shall be designed in accordance with this chapter.

**4.02 General Requirements**

All subdivisions shall be designed so the proposed street system meets the following:

- A. Conforms to the Comprehensive Plan of McLean County.
- B. Extends major and collector streets through the proposed subdivision.
- C. Locates and aligns local and cul-de-sac streets so that use by through traffic is discouraged.
- D. Avoids centerline off-sets of less than 250 feet (75m) for local streets. On collector and arterial streets a detailed traffic study may be required.
- E. Where the angle of deflection of a horizontal centerline is greater than two degrees, a curve shall be inserted with a radius meeting IDOT standards, except a local street with a 90° corner may have a minimum centerline radius of ninety (90) feet (30m).
- F. No more than two (2) streets shall intersect at any point and so that the angle of intersection of centerlines is not less than 80 degrees nor greater than 100 degrees.
- G. Provide a minimum turning radius of twenty-five (25) feet at the intersection of two streets in a residential subdivision. In all other zoning classifications or at the intersection of a local street with a collector or arterial road the County Engineer shall determine the minimum radius.
- H. In a single-family zoning district a cul-de-sac shall not exceed 1200 feet (360m) in length or have more than 15 lots fronting thereon, whichever imposes the more demanding standard and in other zoning districts a cul-de-sac shall not exceed 400 feet (120m) or have more than 8 lots fronting thereon, whichever imposes the more demanding standard.
- I. Encourage safe and efficient traffic flow and provide sufficient vehicular storage space for stopping and turning movements so as not to conflict with traffic at intersecting streets or driveway entrances.
- J. A subdivision shall have at least two means of vehicular access.
- K. When a proposed subdivision borders undeveloped property which could be developed, connecting streets shall be provided to these properties so as to allow for a reasonable interconnecting street pattern.
- L. When a proposed subdivision abuts property that has an approved preliminary plan or final plat, the proposed subdivision shall connect to all existing or proposed connecting streets.
- M. The use of cul-de-sacs in a subdivision shall be limited to situations where the natural topography or other factors dictate its use as the best engineering or design option.

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- N. The County Board may require the developer to provide for an arterial or collector street through the subdivision if it deems the arterial or collector necessary in order to provide adequate access to the area in which the development is proposed.
- O. All streets shall be designed using concrete curb and gutter.

### 4.03 Public Street Right-of-Way Dedication

- A. All public streets and roadways proposed within the confines of a subdivision shall be located in dedicated public right-of-way as required by this section.
- B. All public subdivision streets shall be located within public rights-of-way and shall conform to the minimum requirements of its classification as described in the following table.

Classification	Residential	Commercial and Manufacturing
Arterial w/curb	120'	100'
Collector w/curb	80'	80'
Local w/curb	60'	60'
Cul-de-sac Terminus w Curb	130'	130'

- C. The subdivider shall provide not less than one-half of the right-of-way required for the construction or upgrade of an adjacent street.
- D. When this ordinance requires turning lanes, turning radii, center median, traffic control devices or other installation which cannot be installed within the right-of-way otherwise required by this Ordinance without the elimination or conflict between such features and other public improvements, the subdivider shall dedicate such additional right-of-way as is necessary to accommodate all such improvements.
- E. When a subdivision is situated along a street proposed as part of a land use plan, the subdivider shall provide not less than one-half of the required right-of-way.

### 4.04 Design Standard

- A. Pavement width shall be based on street classification, the expected traffic volume and the zoning district, whichever is the more demanding, in accordance with the following:

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Street Classification	Residential	Commercial or Manufacturing
Arterial - over 850 DHV	2-24' w/ 14' median	2-24 w/ 14' median
Arterial - under 850 DHV	38'	38'
Collector	38'	38'
Local	30'	30'
Boulevard	22'	22'

The width of a curb and gutter street shall be measured from face of curb to face of curb.

### B. Pavement Structure

Pavement thickness shall be determined by IDOT structural design formulas with the following minimum requirements:

1. For roadways having a Bituminous Concrete surface, the minimum base thickness shall be 10" of compacted CA-6 or CA-10. The minimum surface shall be 3" of Class I bituminous concrete.
2. For roadways having a Portland Cement Concrete surface, a minimum thickness of 6" (150mm) shall be required.
3. All streets in commercial or manufacturing districts shall be concrete or full depth asphalt construction with the thickness based upon the estimated traffic.

### C. Materials and Method

Streets shall be constructed in accordance with all design and construction standards outlined in the following:

1. Illinois Department of Transportation "Design Manual"
2. Illinois Department of Transportation "Highway Standards"
3. Illinois Department of Transportation "Standard Specifications for Road and Bridge Construction"

### D. Cul-de-Sac Terminus

A cul-de-sac terminus shall have a minimum right-of-way diameter of one hundred forty (140) feet (42m) and a pavement diameter of one hundred two (102) feet (16m) where a rural cross-section is used. Where an urban cross-section is used, the right-of-way diameter shall be one hundred thirty (130) feet

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(39.5m) and the pavement diameter shall be one hundred ten (110) feet (33.5m) measured face-to-face of curb.

### E. Vertical Gradients

Differing connecting street gradients shall be connected with vertical curves. The "Design Manual" shall govern all vertical curve computations, except when the algebraic difference of the gradient is less than one (1) percent, a fifty (50) foot (15m) vertical curve length shall be utilized. Street gradients for curb and gutter streets shall be a minimum of five tenths of one percent (.5%).

### F. Curb and Gutter

1. Curb and gutter shall be Type B-6.18 in accordance with the "I.D.O.T. Highway Standards" and installed in accordance with the "Standard Specifications of Road and Bridge Construction".
2. In any subdivision where sidewalks are provided, all curb and gutter shall be designed so as to allow wheelchairs to travel freely and without assistance. At each crosswalk a ramp shall be installed with a non-slip surface so that the sidewalk and street blend to a common level. These ramps shall be designed and constructed in accordance with the "Highway Standards".
3. In all subdivisions having lots with ten thousand (10,000) square feet or less, curb and gutter edging shall be installed.

### G. Signing

1. Where required, all regulatory and advisory signs shall be installed in accordance with the Manual on Uniform Traffic Control Devices.
2. All stop signs shall be installed on 4"x6" treated wooden posts. All other signs shall be installed on 4"x4" treated wooden posts.
3. All signs shall be of hi-intensity grade reflective material.

## 4.05 Specifications and Special Provisions

All streets and curb and gutter shall be constructed in accordance with all applicable sections of the Illinois Department of Transportation's "Standard Specifications for Road and Bridge Construction", the current edition as may be modified, supplemented and amended by this Manual or the County Engineer. These modifications, amendments and amplifications have been provided in this Chapter of the Manual.

### Street Special Provisions

Curb Marking of Water and Sewer Services - At the time any curb and gutter is poured, the contractor shall mark the top of the curb with an "S" or "W" for sewer and water services respectively.

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Adjustment of Frame and Grate - Final grade for all manhole castings will be determined after the curb and gutter has been poured and the sub grade and/or base has been constructed. Final adjustment of the frame and grate shall be made in the following manner: After the curb and gutter has been poured and the base constructed, the final elevation will be determined by the Engineer. The frame and grate will be adjusted to this elevation in accordance with the Standard Specifications. Any material disturbed while adjusting the frame and grate will be disposed of and all fill made with lean concrete. A maximum of eight (8) inches (200mm) of adjusting rings shall be allowed.

Coarse Aggregate - All coarse aggregate for concrete shall be crushed stone. Gravel, crushed gravel and crushed slag shall not be allowed.

Combination Concrete Curb and Gutter - Concrete curb and gutter shall be sawed or scored at intervals coinciding with the joint intervals of the adjoining pavement. The minimum joint depth for the gutter shall be two (2) inches (50mm), and one (1) inch (25mm) for the curb. The curb and gutter may be jointed instead of sawed provided the stated joint depths are obtained. If the curb and gutter is adjacent to bituminous pavement it shall be jointed at fifteen (15) foot (5m) intervals.

The sawing of the curb and gutter shall commence within four (4) hours of the start of the pour unless otherwise directed by the Engineer. Sawing shall continue until all joints are completed or until sunset, whichever comes first. If all joints are not completed by sunset, sawing shall resume at sunrise and continue until completed.

Asphaltic type expansion joints one (1) inch (25mm) thick shall be placed at all P. C., P.T. and R.P. C points and at 500' (150m) minimum intervals.

Test Rolling of Sub grade and Base Course - The contractor will provide at his own expense a loaded truck and test roll the compacted sub grade in the presence of the Engineer or his/her designee before any sub-base, or surface is placed. The truck shall be loaded as follows: 27,000 pounds (12,250kg) on two axles and 45,000 pounds (20,500kg) on three axles, plus or minus ten percent. The truck shall make one pass over the entire length of each traffic lane to be constructed. Areas that show rutting, cracking or rolling will not be accepted; the contractor will recompact and/or reconstruct the sections that fail and test roll again for acceptance.

When bituminous or concrete surface courses are to be placed over an aggregate base, the base shall be test rolled prior to placement of the surface course.

Portland Cement Concrete Pavement - Sawed transverse joints shall be not be greater than 2.5 times in feet, the thickness in inches of the pavement apart and shall conform with the details in the plans. All equipment and labor required to perform the necessary jointing operation shall be available to begin sawing no later than four (4) hours after the paving operation begins, unless excess raveling occurs. The contractor shall provide the

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necessary equipment and labor needed to complete the sawing at the same rate per longitudinal foot as the paving operation.

The contractor shall stop paving operation at 4:30 P.M. unless otherwise approved by the Engineer. Sawing shall continue at the same rate as stated above until sunset. If joints are not completed by sunset, sawing shall commence at sunrise and continue at the same rate as the previous day until all joints are completed.

Trucks and mixer trucks will be allowed to operate on the sub grade; however, should the sub grade show any signs of distress, all operations will cease until these items are corrected to the satisfaction of the Engineer. Curb and gutter is to be formed in a separate operation from the pavement. Monolithic curb will not be permitted.

Final finish shall be Type B, except a burlap drag may be substituted for the artificial turf drag.

Portland Cement Concrete Driveway Pavement - Pavement shall be a minimum of six (6) inches (150mm) in depth. Sawed transverse and longitudinal joints shall conform to the following:

Driveway at Widest Point	No. of Longitudinal Cuts
0' - 12'	0
13' - 24'	1
25' - 36'	2

Driveway Length	No. of Transverse Cuts
0' - 12'	0
13' - 24'	1
25' - 36'	2

The sawed joints shall be spaced evenly throughout the driveway. The joints shall be 1/8 inch (3mm) wide with a minimum depth of 1/4 inch (6mm) and sealed with the same material and in the same manner as Portland Cement Concrete Pavement. Expansion joint a minimum of 3/4 inches thick (18mm) shall be placed between the driveway pavement and sidewalks and between driveway pavement and curb and gutter.

### 4.06 STANDARD DETAILS

**CHAPTER 5 - Design and Construction Standards for Sidewalks and Pedestrian Ways**

**5.01 Introduction**

McLean County does not require sidewalks in its subdivisions and therefore does not provide standards for their installation. Should a subdivider wish to install sidewalks in his subdivision, these sidewalks will be installed on private property and not in the street right-of-way. It is recommended that if these sidewalks are installed that the owner meets all ADA standards that are required.

**CHAPTER 6 – Design and Construction Standards for Storm Sewers,  
Drainage Ways & Storm Water Detention Facilities**

**6.01 INTRODUCTION**

No subdivision plan or plat shall be recommended for approval, which does not make adequate provision for storm or flood water runoff channels or basins. The storm water drainage system shall be separate and independent of any sanitary sewer or collection tile system. Storm sewers, where required, shall be designed by the Rational Method or any other reasonable method as approved by the County Engineer. A copy of all design computations shall be submitted along with the engineering plans. Underground and/or surface storm water drainage systems shall be installed to service the entire subdivision. On site stormwater detention/retention shall be provided unless otherwise approved.

**6.02 Design Standards**

All subdivisions shall include a storm water drainage system designed in such a way to provide that all lots and outlots in the subdivision will be graded and shaped so as to provide an adequate outlet for that property. This drainage system shall provide for any drainage that naturally flows through the development from adjoining property.

**A. Storm Sewers**

**1. Design Criteria**

- a. Design Formula - Unless otherwise approved by the County Engineer, formulas to be used in connection with the calculation of run-off reasonably expected from the minimum design storm shall be the Rational Method for total contributing areas of twenty (20) acres (8 hectares) or less and the Soil Conservation Service Method as outlined in their Technical Release No. 55 for areas greater than twenty (20) acres (8 hectares). Calculations are to be submitted substantially in the form provided in Exhibit P of the Appendix.
- b. Minimum Design Storm - The minimum design storm used in calculating run-off in the Design Formula will be the average rainfall intensity associated with an average recurrence interval of five (5) years for the storm period calculated by the Time of Concentration as outlined by the latest Technical Letters of the Illinois State Water Survey for rainfall frequencies. The corresponding charts and tables have been provided in Exhibit P of the Appendix for time of concentration, run-off factors and coefficients and frequency intensities for use in either method for run-off estimation.
- c. When changing sewer sizes the sewers shall match at the 9/10 diameter point.

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2. The stormwater drainage system shall connect all inlets and catch basins to a storm sewer, pipe or conduit of sufficient size, grade and capacity to carry the run-off reasonably expected from the Minimum Design Storm on the area in the natural drainage area if that area is improved with the type of improvements permitted and to a maximum density authorized by the then-existing zoning ordinances of the County for property within the jurisdiction of the County; however no storm sewer shall be smaller than twelve (12) inches (300mm) in diameter.
3. The stormwater drainage system shall connect all storm sewers to other storm sewers or improved drainageways of sufficient size, grade, and capacity to carry the runoff reasonably expected from the Minimum Design Storm in the natural drainage area if that area was improved with the type of improvements permitted and to the maximum density authorized by the then-existing zoning ordinances of the County for property within the jurisdiction of the County.
4. Manholes
  - a. Public manholes shall be installed at the end of each storm sewer line, at all changes in grade or alignment, at all intersections and at distances not greater than 400 feet (120m) between manholes for sewers of 15 inches (375mm) or less and 500 feet (150m) for sewers of 18 to 30 inches (450mm-750mm). Greater spacing will be permitted in larger sewers and in those carrying a settled effluent.
  - b. Public manholes in improved streets or other hard surfaced public rights-of-way accessible to vehicular traffic shall be not more than 800 feet (360m) apart or at such lesser distances as is required to permit every storm sewer in the proposed development to be inspected, tested and cleaned from two surfaced manholes separated by not more than 1,200 feet (360m) measured in a straight line along the sewer.
  - c. Minimum drop in a manhole shall be 1 inch (25mm) and the maximum drop in a manhole shall be 24 inches (600mm).
5. Inlets

Inlets for local streets shall be provided for all low points and the maximum spacing shall not exceed four hundred (400) feet (120m), except that the first inlet shall be spaced approximately four hundred feet from the high point or at no greater distance than six hundred (600) feet (180m) when approved by the County Engineer. Inlets for all other street classifications shall meet IDOT design criteria.

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### B. Drainage Ways

1. All drainage ways through the proposed development shall be improved to a size and in a way adequate to carry the runoff reasonably expected from the Minimum Design Storm in the natural drainage area if that area was improved with the type of improvements permitted and to the maximum density authorized by the then-existing zoning ordinances of the County for property within the unincorporated areas of McLean County and the land use element of the County's Comprehensive Plan.
  - a. Design Formula: Unless otherwise approved by the County Engineer, formulas to be used in connection with the calculation of runoff reasonably expected from the Minimum Design Storm shall be the Rational Method for total contributing areas of 20 acres (8 hectares) or less and the Soil Conservation Service Method as outlined in their Technical release No. 55 for areas greater than 20 acres (8 hectares).
  - b. Minimum Design Storm: The Minimum Design Storm used in calculating runoff in the Design Formula will be the average rainfall intensity associated with an average recurrence interval of twenty-five (25) years for the storm period calculated by the Time of Concentration as outlined by the latest Technical Letters of the Illinois State Water Survey for rainfall frequencies. The corresponding charts and tables have been provided in Exhibit P of the Appendix for Time of Concentration, runoff factors, and coefficients and frequency intensities for use in either method for runoff estimation.
2. Drainage ways shall have a flat bottom, maximum 3:1 side slopes, the top of the bank shall be constructed one foot above computed water surface elevation for the Minimum Design Storm, and have a ten (10) foot (3m) maintenance/access lane on each side of the drainage way.

### C. Retention and Detention Facilities

1. No development shall be authorized in McLean County unless it has an approved on-site detention or retention facility. Such facility shall be designed based on the Design Formula.
  - a. Design Formula: Unless otherwise approved by the County Engineer, formulas to be used in connection with the calculation of runoff volumes and allowable release rates reasonably expected from the Minimum Design Storm shall be the Rational Method as outlined of the latest Illinois Division of Highway Standards for the Storm Water Runoff and the method outlined by the Metropolitan Sanitary District of Greater Chicago's sewer permit ordinance of 1972 as modified in Exhibit P of the Appendix for

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Storage for total contributing areas of twenty (20) acres (8 hectares) or less and the Soil Conservation Hydrograph Method for areas greater than twenty (20) acres (8 hectares). The corresponding instructions, charts, tables and forms have been provided in Exhibit P of the Appendix of this Manual for use in either method of calculation. For areas of development up to five (5) acres (2 hectares), the following shall be required.

AREA	REQUIRED STORAGE RATE	MAXIMUM RELEASE RATE ALLOWED
up to 1 acre (0.4 hectare)	10700 cu. ft./acre (750 cu. m/hectare)	1.05 cfs/ acre (0.073 cu. m/hectare)
up to 2 acres (0.8 hectare)	9100 cu. ft./acre (640 cu. m/hectare)	0.90 cfs/ acre (0.063 cu. m/hectare)
up to 3 acres (1.2 hectare)	7800 cu. ft./acre (545 cu. m/hectare)	0.78 cfs/ acre (0.055 cu. m/hectare)
up to 4 acres (1.6 hectare)	6900 cu. ft./acre (480 cu. m/hectare)	0.64 cfs/ acre (0.045 cu. m/hectare)
up to 5 acres (2.0 hectare)	6200 cu. ft./acre (435 cu. m/hectare)	0.60 cfs/ acre (0.042 cu. m/hectare)

b. Minimum Design Storm:

- i Storage volume will be determined from inflow hydrographs generated by the Design Formula using a minimum design storm with a range of rainfall intensities associated with an average occurrence interval of one hundred (100) years and an assumed coefficient for the post development zoning district as set forth in Exhibit P of the Appendix of this Manual.
- ii Allowable release rate will be determined by the Design Formula using a minimum design storm with an average rainfall intensity associated with an average recurrence interval of three (3) years for the storm period calculated by the Time of Concentration as outline by the latest Technical Letters of the Illinois State Water Survey for rainfall frequencies and a runoff coefficient of 0.25.

2. Bank Stabilization

- a. Retention facilities shall be provided with wave shelves along the entire perimeter in accordance with standards in this manual.

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- b. Retention and detention facilities shall have a maximum 4:1 bank slope.
- c. Shoreline surfaces subject to wave action shall be stabilized with structural material such as riprap, revetment matting, retaining walls, etc.

### 6.03 DESIGN CALCULATION REQUIREMENTS

Calculations required to demonstrate compliance with the design standards enumerated in the previous section of this Manual shall be submitted substantially in the form and content as shown and provided in Exhibit P of the Appendix. Calculations submitted with Preliminary Plans are not required to be of greater detail as the calculations required to be submitted with Public Improvement Engineering Plans and Specifications.

### 6.04 RIGHT-OF-WAY AND EASEMENT DEDICATIONS

- A. Drainage Ways - All drainage ways shall be located in dedicated public rights-of-way. Rights-of-way for drainage ways shall be a minimum of one hundred (100) feet (30m) wide. This minimum width shall be increased if the County Engineer shall determine that the drainage way's hydraulic capacity is inadequate to properly serve its drainage function.
- B. Storm Sewers - Storm sewers shall be located in public easements or dedicated public rights-of-way. Such easements and rights-of-way shall be of sufficient width and the storm sewer shall be installed at such locations therein as to permit open cut installation, maintenance and repair within the confines of the easement or right-of-way without relocation or other unreasonable interference with other semi-public utilities located therein and so as to meet the following minimum standards:
  - 1. Fifteen (15) feet (5m) in width plus five (5) feet (1.5m) for each additional utility for storm sewers twenty four (24) inches (600mm) in diameter or less.
  - 2. Two (2) additional feet (.5m) in width for each twelve (12) inches (300mm) or portion thereof, of additional storm sewer diameter provided in excess of twenty four (24) inches (600mm); and
  - 3. Additional width may be required if storm sewers exceed fifteen (15) feet (5m) in depth.

### 6.05 SPECIFICATIONS & SPECIAL PROVISIONS

- A. Storm Sewers - Storm sewers shall use materials and be installed in the manner meeting or exceeding the requirements, standards, and specifications contained in the Standard Specifications for Water and Sewer Main Construction in Illinois, the current edition as then modified, supplemented and amended by this Manual or the County Engineer. These modifications, amendments and applications have been provided in this Chapter of the Manual.

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- B. Drainage Ways & Detention or Retention Facilities - These shall be constructed in the manner meeting or exceeding the requirements, standards and specifications contained in the applicable sections of the "Standard Specifications for Road and Bridge Construction" for the Illinois Department of Transportation, the current edition as then modified, supplemented and amended by this Manual or the County Engineer. These modifications, amendment and applications have been provided in this Chapter of the Manual.
- C. Special Provisions Modifying Standard Specifications for Water and Sewer Main Construction in Illinois.

### 20-2.21 B. BACKFILL ABOVE CENTERLINE OF PIPE

Add the following ahead of 20-2.21 B. (1):

**BACKFILL ABOVE CENTERLINE OF PIPE TO AN ELEVATION 1 FOOT (300MM) ABOVE TOP OF PIPE:**

Pipe Sewers: Vitrified extra strength clay pipe and PVC pipe shall be backfilled from the top of the granular cradle at the spring line of the pipe, to a level one (1) foot (300mm) above the top of the pipe with granular backfill or carefully placed select backfill. Trench backfill shall be required under all pavements to a width of two (2) feet (300mm) outside of curb or five (5) feet (1.5m) outside edge of pavement.

Water Mains and Sewer Force Mains: Ductile Iron and PVC pipe shall be backfilled with select excavated material, free from clods or stones, or with granular backfill to a level one (1) foot (300mm) above the top of the pipe. Trench backfill shall be required under all pavements to a width of two (2) feet (300mm) outside of curb or five (5) feet (1.5m) outside edge of pavement.

### 30-3.01 F Ductile Iron Pipe

Add:

Inside of all pipes shall have standard cement mortar lining and the inside and outside shall be tar (seal) coated.

### 32-2.07 Cast Iron Frames, Cover and Steps]

Add:

Covers shall be Neenah, East Jordan or equal. Neenah numbers are given as examples.

For Storm Manholes: Standard Type 1 Frame and Grate - Neenah R-2077 L with Type "A" Grate.

Steps shall be M.A. Industries PS1-PF Manhole Step or equal conforming to

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ASTM C-478.

### **32-3.05 PRECAST MANHOLES**

Add to paragraph 3:

No bitumastic material shall be used on the inside of manholes. Inside of all joints shall be furnished with non-shrink type grout and rubber gaskets.

### **32-3.09 PLACING CASTINGS**

Change to read:

Castings placed on concrete or masonry surfaces shall be set in a full mortar bed or on approved solid bituminous gaskets.

#### **32-3.09A STREETS AT GRADE**

Change 12 inches to 8 inches.

#### **32-3.09B STREETS OR ALLEYS WITH NO ESTABLISHED GRADE**

Change 12 inches to 8 inches.

#### **32-09C MANHOLES NOT WITHIN STREET OR ALLEY AREAS**

Change 18 inches to 24 inches.

Change second paragraph to read:

Unless otherwise directed, the top of manhole castings shall be at grade of existing surface.

### **32-3.11 PIPE CONNECTIONS**

Add:

Bituminous material shall be used on the outside of the manhole only.

#### **A. Storm Sewer Special Provisions**

Adjustment of Frame and Grate: Final grade for all manhole castings will be determined after the curb and gutter has been poured and the sub grade and/or base has been constructed. Final adjustment of the frame and grate shall be made in the following manner: After the curb and gutter has been poured and the base constructed, the final elevation will be determined by the Design Engineer.

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The frame and grate will be adjusted to this elevation in accordance with the Standard Specifications. Any material disturbed while adjusting the frame and grate will be disposed of and all fill made with lean concrete. A maximum of eight (8) inches (200mm) of adjusting rings shall be allowed.

**Materials:** Material for storm sewers shall be reinforced concrete culvert storm drain and sewer pipe, AASHTO M-170, or concrete sewer drain and culvert pipe, AASHTO M-86, with the class as being specified under the various types in Article 603.03 of the IDOT Standard Specifications for Road and Bridge Construction or ductile iron pipe class 150. Joints shall be mastic or preformed gasket type. Other types of materials for storm sewer will not be allowed.

**Compaction of Trenches:** All sewer trenches under paved surfaces shall be compacted by mechanical means unless otherwise directed by the County Engineer.

**Granular Cradle:** A granular cradle will be required for all storm sewers as shown in the Standard Details. Material for the granular cradle shall comply with either Type A or C gradations.

**Trench Backfill:** Trench Backfill shall comply with Section 208 of the Standard Specifications for Road and Bridge Construction. All trenches under another sewer or water main, or under existing or proposed streets, sidewalks, driveways and curb and gutter shall be backfilled with material as specified in Section 1003.04 of the Standard Specifications.

**Inlet Type A w/ Type 3 Frame and Grate:** Section 602 shall govern the construction of Inlets Type A. They shall be built in accordance with the Standard Details for Inlets Type A. Section 604 of the Standard Specification shall govern the construction of Frame and Grate Type 3. Frame and Grate Type 3 shall be equal to Neenah No. R-3010. The curb box shall be of the open type and the grate shall be Type A. Only cast iron grates shall be used.

**Inlet Type H w/ Type 50 Frame and Grate:** Section 602 shall govern the construction of Inlets Type H. They shall be built in accordance with the Standard Details for Inlets Type H. Section 604 of the Standard Specifications shall govern the construction of Frame and Grate Type 50. Frame and Grate Type 50 shall be equal to Neenah No. R-3067-CC. Grates shall be Type A. Only cast iron grates shall be used.

### 6.06 STANDARD DETAILS

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## CHAPTER 7 - Design and Construction Standards for Sanitary Facilities

### 7.01 INTRODUCTION

The private sewage disposal systems for all subdivisions under the jurisdiction of McLean County shall meet the requirements of the Illinois Private Sewage Disposal Licensing Act and Code and the McLean County Code, Chapter 28, Article II, Private Sewage Disposal Systems or as outlined in this chapter.

### 7.02 GENERAL REQUIREMENTS

- A. In developments where private sewage disposal systems are proposed, the developer must ensure that the portion of each building lot intended for the installation of the private sewage disposal system be left in an undisturbed condition;
- B. Before a building permit can be issued the absorption capacity of the soil shall be determined by either a soil investigation by a certified soil classifier or by percolation tests;
- C. The Developer shall provide access to a IDPH common collector, a tile having a combined flow of less than fifteen hundred (1500) gallons (6000L) per day, or a IEPA common collector, a tile having a combined flow of fifteen hundred (1500) gallons (6000L) or more per day;
- D. All common collectors shall have the capacity to drain that portion of the subdivision it is intended to drain;
- E. Maintain separation from a public or private water supply;
- F. Provide areas for possible tertiary effluent treatment facilities to serve common collectors which are regulated by the IEPA. These facilities shall be located on outlots and not as part of any lot of record. These areas shall have adequate access to allow installation and maintenance of the treatment facility.
- G. An acceptable discharge for all common collectors shall be provided.
  - 1. A IDPH common collector may be discharged into a river or stream which provides more than a 5:1 ratio based on a 7 day, 10 year low flow rate; or into a lake or pond with the maximum allowable discharges not to exceed two (2) per one (1) acre of surface area of the lake or pond. Discharges shall have as much separation as possible to allow for maximum dilution capabilities.
  - 2. An IEPA common collector must have a National Pollution Discharge Elimination System permit from IEPA. A copy of this permit must be on file with the McLean County Health Department.

### 7.03 DESIGN REQUIREMENTS

- A. Rate of Flow: Each unit of a private sewage disposal system shall be designed to treat the volume of sewage discharged into it. These volumes shall be determined by the McLean County Health Department for each individual type of use. A

## McLEAN COUNTY MANUAL OF PRACTICE

collection tile connecting two or more of these individual systems shall be of adequate size for the proposed volumes.

- B. **Materials:** All pipe used for collection tiles shall be vitrified clay pipe ASTM designation C-700 (extra strength), ductile iron pipe Class 150 conforming to ANSI A21.51, or PVC SDR 35 or Schedule 40. Vitrified clay pipe joints shall conform to ASTM C-425. Ductile iron pipe joints shall be mechanical or rubber ring (slip seal or push-on) joints. PVC joints shall be of a like material properly cemented with an approved cement.
- C. **Pipe Size and Slope:** All common collectors carrying domestic sewage by gravity flow shall be designed for the anticipated flow volume through the pipe and having a minimum diameter of four (4) inches (100mm). All services shall be a minimum of four (4) inches (100mm). The minimum allowable slope shall be 1 percent for pipes less than eight (8) inches (200mm) in diameter. For pipes larger than eight (8) inches (200mm) slopes less than 1 percent will be allowed.
- D. **Alignment:** All common collectors shall be laid straight in both horizontal and vertical planes between manholes unless otherwise approved by the County Engineer.
- E. **Sewer Size Changes:** When common collectors of different diameters join in a manhole, the invert elevations shall be adjusted to maintain a uniform energy gradient. Alignment of the 0.9 depth points shall be implemented to meet the requirement.
- F. **Cleanouts and Manholes:**
  - 1. An approved cleanout shall be provided at the beginning of each collection tile;
  - 2. A manhole shall be provided at all changes in grade, size or alignment and at all intersections and shall not be more than five hundred (500) feet (160m) apart.
- G. **Common Collector Service Laterals:**
  - 1. **Location:** All services shall terminate a minimum of three (3) feet (1m) inside any property or easement line;
  - 2. **Depth:** All services shall terminated at a depth of no less than five (5) feet (1.6m) below the finished ground elevation.
  - 3. **Slope:** All services shall be laid at a 1% slope or greater. The last length of pipe at the property line shall be laid at 1%. Change in slope on services may be made by breaking joints, provided the joint seal is air tight and the recommendations of the manufacturer are not exceeded. Fittings not greater than a 45 degree bend may be used where changes in grade dictate.
  - 4. Service tees or wyes over twelve (12) feet (4m) in depth shall be encased in portland cement concrete as per the standard detail.

## **McLEAN COUNTY MANUAL OF PRACTICE**

### **7.04 EASEMENTS**

All common collectors shall be installed in easements on lots of record or on outlots. Such easements shall be of sufficient width and the tiles shall be installed at such locations as to permit open cut installation and to allow for maintenance and repair within the boundaries of the easement without relocation or unreasonable interference with other utilities. Easements shall meet the following minimum standards:

- A. Be a minimum of fifteen (15) feet (4.5m) in width plus five (5) feet (1.5m) for each additional utility except for a water line which shall be ten (10) feet (3m);
- B. Any collection tile exceeding twelve (12) feet (3.5m) in depth may require additional width.

### **7.05 SPECIFICATIONS AND SPECIAL PROVISIONS**

All common collectors shall be installed in accordance with all applicable sections of the Standard Specifications for Water and Sewer Main Construction in Illinois, the current edition as then modified, supplemented and amended by this manual or the McLean County Health Department. These modifications, amendments and amplifications have been provided in this chapter.

#### **Special Provisions**

**Granular Cradle:** A granular cradle (bedding and haunching) shall be required for all collection tiles as shown in the standard details and in accordance with Section 20-2.203 of the Standard Specifications for Water and Sewer Main Construction in Illinois.

**Trench Backfill:** Material used for the backfill of all trenches under another sewer or water main, or under existing or proposed streets, or existing sidewalks or drainage ways, shall comply with Section 208 of the Standard Specifications for Road and Bridge Construction.

**Compaction of Trenches:** All common collectors under streets, driveways or sidewalks shall be compacted by a mechanical compactor, jetting or as directed by the Engineer.

**Water and Sewer Service Markings:** The contractor shall place 2"x4" boards extending from the bottom of the water or collection tile service to a height of two (2) feet (.6m) above the ground at the location where each service terminates. These markers shall be installed at the time the services are constructed.

**CHAPTER 8 - Water Distribution and Supply**

**8.01 Introduction**

All water distribution and supply systems shall meet all requirements of the Illinois Department of Public Health the McLean County Health Department or any other regulatory agency having jurisdiction over this type of system.

**McLEAN COUNTY MANUAL OF PRACTICE**

**CHAPTER 9 - Reserved**

## **CHAPTER 10 - Design and Construction Standards for Bridges and Culverts**

### **10.01 Introduction**

Where streets or roadways in or adjacent to property in a subdivision crosses drainageways, streams or creeks, or where bridges or culverts are otherwise proposed within the confines of a subdivision, or on the roadway adjacent thereto, they shall be designed and constructed in accordance with this chapter.

### **10.02 Right-of-Way Dedication**

Bridges and culverts shall be located in dedicated public right-of-way of sufficient width to permit the construction, operation, maintenance and replacement of the improvement within the confines of the easement or dedicated right-of-way without relocation or other unreasonable interference with other public utilities located therein.

### **10.03 Design Standards**

- A. Bridges and culverts shall be of a width comparable to the abutting street or roadway, but shall not have less than twenty-eight (28) feet of width between curbs.
- B. Bridges and culverts shall be of sufficient size to permit the flow from a 25-year storm event on the upstream drainage area in a post-developed situation according to the most recent edition of the Comprehensive Plan, but in no case be less than eighteen (18) inches (450mm) in diameter.
- C. Bridges shall meet or exceed all applicable County, Department of Transportation, Illinois Commerce Commission, or other local, state or federal regulatory authority or accepted industry standard, whichever impose the most demanding requirements with respect to the preservation and protection of the public health, safety and welfare.

### **10.04 Specifications & Special Provisions**

All bridges and culverts shall be constructed in accordance with all applicable sections of the Illinois Department of Transportation's "Standard Specifications for Road and Bridge Construction", the most current edition as modified, supplemented and amended by this manual or the County Engineer.

All pipe culverts shall be pre-coated annual corrugated metal culverts.

## **CHAPTER 11 - Design and Construction Standards for Railroad Crossings**

### **11.01 Introduction**

Where a street or roadway in or adjacent to property in a subdivision crosses a railroad line, or where a railroad line is otherwise proposed within the confines of a subdivision, or on the roadway adjacent thereto, it shall be designed and constructed in accordance with this chapter.

### **11.02 Right-of-Way Dedication**

Railroad crossings shall be located in dedicated public right-of-way of sufficient width to permit the construction, operation, maintenance and replacement of the improvement within the confines of the easement or dedicated right-of-way without relocation or other unreasonable interference with other public utilities located therein.

### **11.03 Design Standards**

- A. Railroad crossings shall be a minimum of two (2) feet (600mm) wider than the roadway of any road passing over the tracks.
- B. Railroad crossings shall meet or exceed all applicable County, Department of Transportation, Illinois Commerce Commission, or other local, state, or federal authority or industry standard, whichever imposes the most demanding requirements with respect to the preservation and protection of the public health, safety and welfare.

# **McLEAN COUNTY MANUAL OF PRACTICE**

## **CHAPTER 12 - Standards for Other Public Utilities**

### **12.01 INTRODUCTION**

All public and quasi-public utilities, including but not limited to gas, electric, telephone and cable tv lines shall be located underground unless otherwise permitted.

### **12.02 EASEMENT AND RIGHT-OF-WAY DEDICATION**

Except for individual building or property services, utility lines shall be located in utility easements. No utilities will be permitted within the road right-of-way. Such easements shall be of sufficient width and the utilities shall be installed at such locations therein as to permit open cut installation, maintenance and repair within the confines of the easement without relocation or other unreasonable interference with other public or quasi-public utilities located therein, provided that no permanent structures shall be placed over these easements. Fences and vegetative material may be placed on easements, but if it becomes necessary to repair or inspect the underlying utility, the fence or vegetative material may be removed, damaged or destroyed at the expense of the property owner. Under no circumstances will the County or any Township be responsible for the repair or replacement of anything placed upon an easement.

### **12.03 DESIGN STANDARDS**

- A. Front yard electric transformers shall not be located above ground in front yard easements.
- B. Side yard electrical transformers may be located above ground when the transformer is located behind the building setback line.
- C. Easements shall have a minimum width of ten (10) feet (3m) plus five (5) feet (1.5m) for each additional utility to be provided.

### **12.04 SPECIFICATIONS AND SPECIAL PROVISIONS**

All utility installation shall conform with the applicable County, Illinois Commerce Commission regulatory authority or accepted industrial standards, whichever imposes the highest and most demanding requirements for the preservation and protection of the public health, safety and welfare. All gas, electric, phone and cable tv lines shall be located five (5) feet (1.5m) from any water or sewer main or service.

**CHAPTER 13 - Sediment and Erosion Control**

**13.01 INTRODUCTION**

The intent of this section is to require erosion control and storm water practices that will reduce the amount of sediment and other pollutants leaving development sites, both during and after construction and to reduce the impact of sedimentation from these developments on the receiving water courses. It is also the intent of this section to promote design and construction practices that 1) minimize ground disturbances during development; 2) maintain natural drainage; and 3) provide storm water storage. Erosion, sedimentation and storm water control measures are needed for the following reasons:

- A. High rates of soil loss may occur from areas undergoing development for nonagricultural use including, but not limited to, the construction of dwelling units, commercial buildings, industrial plants, and public works.
- B. The washing, blowing and falling of eroded soil across and upon roadways endangers the health and safety of users of these roadways by decreasing vision and reducing traction of vehicles.
- C. Soil erosion necessitates the costly repair of gullies, wash-outs, embankments, drainage structures and stream banks.
- D. Sediment from soil erosion can clog or reduce the flow and storage capacity of sewers, ponds, ditches and streams.
- E. Sediment and associated pollutants can cause irreparable biological damage to the aquatic life in our streams, ponds, lakes and rivers and the species that are dependent upon that aquatic life.
- F. Sediment limits the use of water and waterways for beneficial uses, including water supply, navigation, recreation, fishery resources, drainage and flood control.
- G. Development, if not controlled, causes increases in peak storm water runoff rates which can lead to increased stream bed and stream bank erosion and flooding in receiving streams.
- H. Erosion and stream bank instability caused by altered stream flow rates due to development can create unsafe conditions, adverse environmental impacts, and other conditions that require costly repairs or preventative measures to protect private and public structures and facilities.

**13.02 APPLICABILITY**

- A. No land surface shall be disturbed unless an erosion control plan has first been submitted and approved for that activity, except as follows:
  - 1. Land disturbing activities for which the area disturbed is less than 5,000 square feet;
  - 2. For the conduct of agriculture involving normal agricultural practices;
  - 3. Construction of one single-family dwelling, which is not part of a residential subdivision.

## McLEAN COUNTY MANUAL OF PRACTICE

- B. The County Engineer may require any non-agricultural construction activity, regardless of land disturbance area or type of activity, to comply with this ordinance if it is determined the construction activity may cause a sedimentation problem.

### 13.03 STANDARDS FOR DESIGN AND MAINTENANCE OF EROSION, SEDIMENTATION AND STORM WATER CONTROL MEASURES

- A. All temporary sediment control measures shall be designed to control sediment for a five-year frequency storm event.
- B. Design standards for erosion and sediment control measures shall comply with provisions of the Illinois Procedures and Standards for Urban Soil Erosion and Sediment Control, published by the Urban Committee of the Association of Illinois Soil and Water Conservation Districts, latest edition, unless otherwise stated by this manual.
- C. A written erosion control plan shall be provided along with the subdividers NPDES permit from IEPA.
- D. The subdivider shall provide the name and telephone number of the person responsible for the installation, inspection and maintenance of the erosion control measures.
- E. The responsible person shall keep a diary detailing the installation and maintenance of all erosion control measures.
- F. After each storm event of ½" (12mm) or more the responsible person shall inspect all erosion control measures and have any needed repair or maintenance done in a timely manner.

### 13.04 EROSION, SEDIMENT, AND TEMPORARY STORM WATER CONTROL MEASURES

On-site sediment control measures shall be constructed and functional prior to initiating clearing, grading, stripping, excavation or fill activities on the site.

Sediment control measures and temporary storm water control measures are to be maintained so they are operating effectively until permanent ground cover and permanent storm water control measures are established.

The County Engineer may require additional control measures as necessary after a site inspection if sedimentation controls are not functioning properly.

The County Engineer may with written notice suspend operations if erosion control measures have not been installed or are not being maintained properly.

## McLEAN COUNTY MANUAL OF PRACTICE

### 13.05 TEMPORARY GROUND COVER

All disturbed areas including lots on which no further construction is anticipated for twenty-one (21) days, shall have a temporary ground surface cover applied within seven (7) days of the last activity.

### 13.06 PERMANENT GROUND COVER

- A. When the finish grading on any portion of a project has been completed, a temporary or permanent ground cover shall be applied within fourteen (14) days, or as soon thereafter as soil conditions allow.  
If a temporary surface is applied, the permanent ground cover shall be applied as soon as conditions allow.
- B. Rights-of-ways shall be seeded as follows:
  - 1. All work shall be done in accordance with Section 250 of the Standard Specifications for Road and Bridge Construction;
  - 2. Fertilizer nutrients with a ratio of 1:1:1 shall be applied at the rate of 270 pounds (300kg) per acre (hectare);
  - 3. Seeding mixture Class 2, Roadside Mixture, shall be applied at the rate specified;
  - 4. After the area has been seeded, mulch shall be applied in accordance with Section 251 of the Standard Specifications for Road and Bridge Construction.
- C. Lots shall be seeded with an acceptable seed mixture or other type of permanent ground cover that will allow minimal soil erosion.
- D. Public improvements will not be accepted until all public rights-of-way have permanent ground cover and all other areas of the subdivision have at least temporary ground cover.

**McLEAN COUNTY MANUAL OF PRACTICE**

**CHAPTER 14 - Reserved**

## EXHIBIT N

Ex. N

EXHIBIT N  
ESTIMATE OF COST  
(EXAMPLE)

Project: \_\_\_\_\_  
 Estimator: \_\_\_\_\_  
 Date: \_\_\_\_\_

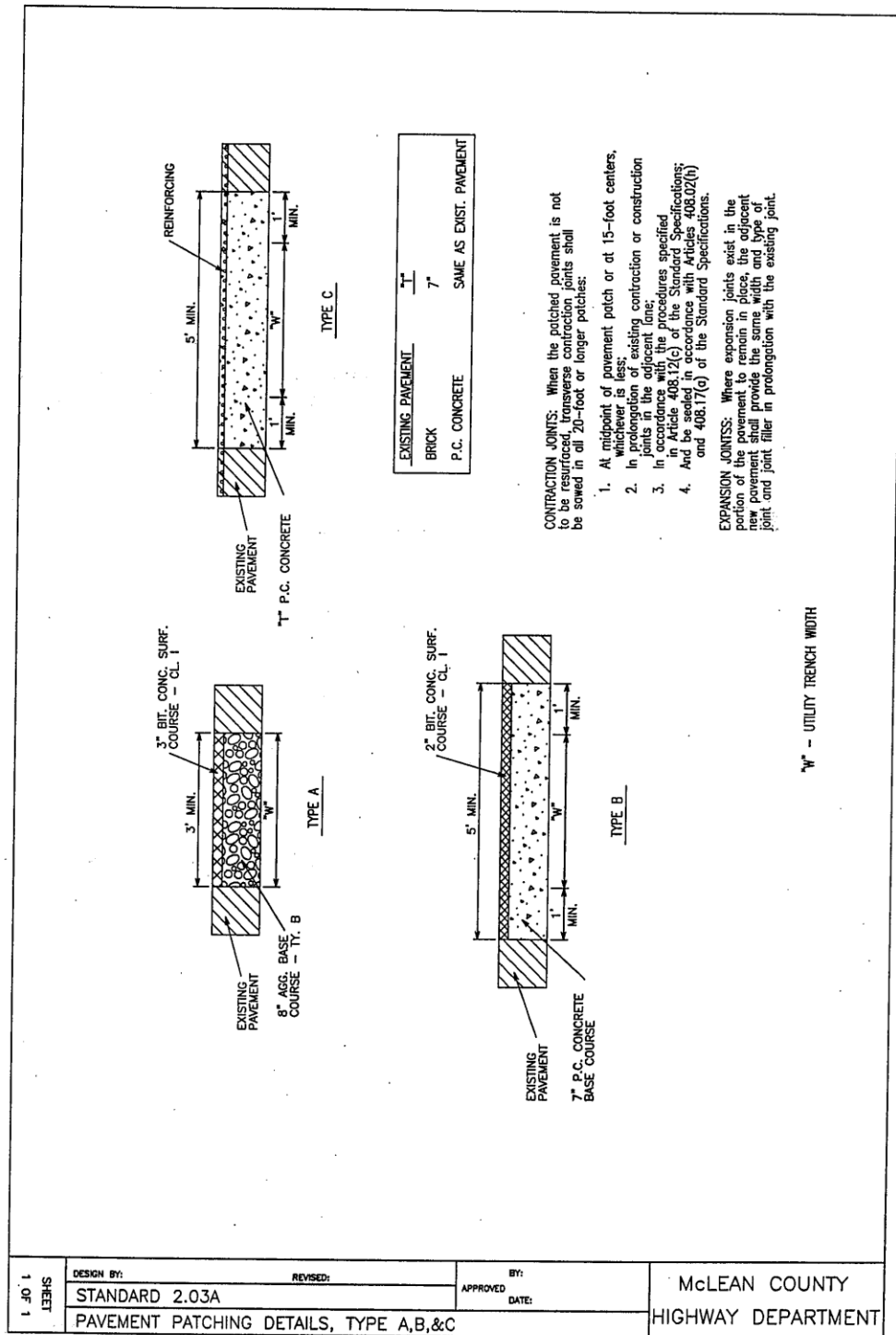
	Item	Quantity	Unit Cost	Cost
	Earthwork			
1.	Earth Excavation	1000 C.Y.	\$4.00	\$ 4,000
2.	Borrow Excavation	500 C.Y.	\$5.00	\$ 2,500
3.	Topsoil Placement	2000 S.Y.	\$1.50	\$ 3,000
	.	.	.	.
	Subtotal			\$20,000
	Sanitary Sewer System			
1.	8" VCP Sanitary			
	Sewer	1000 L.F.	\$ 12.00	\$12,000
2.	6" VCP Sanitary			
	Sewer	200 L.F.	\$ 10.00	\$ 2,000
3.	Manholes	3 Ea.	\$1000.00	\$ 3,000
	.	.	.	.
	Subtotal			\$30,000
	Storm Sewer System			
1.	12" RCP Storm			
	Sewer	500 L.F.	\$ 12.00	\$6,000
2.	Manholes - 4' dia.	2 Ea.	\$800.00	\$1,600
3.	Inlets Type A-3	2 Ea.	\$450.00	\$ 900
	.	.	.	.
	Subtotal			\$10,000
	Water Mains			
1.	6" D.I. CL50			
	Water Main	1000 L.F.	\$ 10.00	\$10,000
2.	6" Gate Valve & Box	4 Ea.	\$300.00	\$ 1,200
3.	Steamer Fire Hydrant	2 Ea.	\$900.00	\$ 1,800
	.	.	.	.
	Subtotal			\$25,000

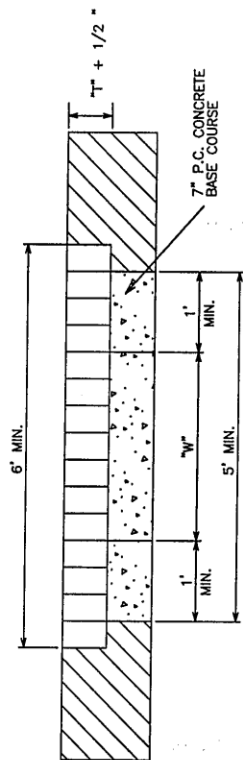
# McLEAN COUNTY MANUAL OF PRACTICE

Ex. N (pg. 2)

Page 2  
Exhibit N

	Item	Quantity	Unit Cost	Cost
	Streets			
1.	PCC Pavement - 6"	2000 S.Y.	\$13.00	\$26,000
2.	Curb & Gutter Ty. B6.18	1500 L.F.	\$ 8.00	\$12,000
3.	Driveway Pavement - 6"	300 S.Y.	\$20.00	\$ 6,000
	.	.	.	.
	Subtotal			\$50,000
	Sidewalk			
1.	PCC Sidewalk - 6"	1000 S.F.	\$2.50	\$ 2,500
2.	PCC Sidewalk - 4"	2000 S.F.	\$2.25	\$ 4,500
3.	Sidewalk Special Ty. 1	50 S.F.	\$5.00	\$ 250
	.	.	.	.
	Subtotal			\$ 8,000
	Erosion & Sediment Control			
1.	Seeding Ty. A	2 Ac.	\$400.00	\$ 800
2.	Seeding Ty. B	4 Ac.	\$500.00	\$ 2,000
3.	Straw Bales	50 Ea.	\$ 5.00	\$ 250
	.	.	.	.
	Subtotal			\$ 5,000
	TOTAL CONSTRUCTION COST			\$148,000
	ENGINEERING COST			\$ 14,500
	TOTAL			\$162,800



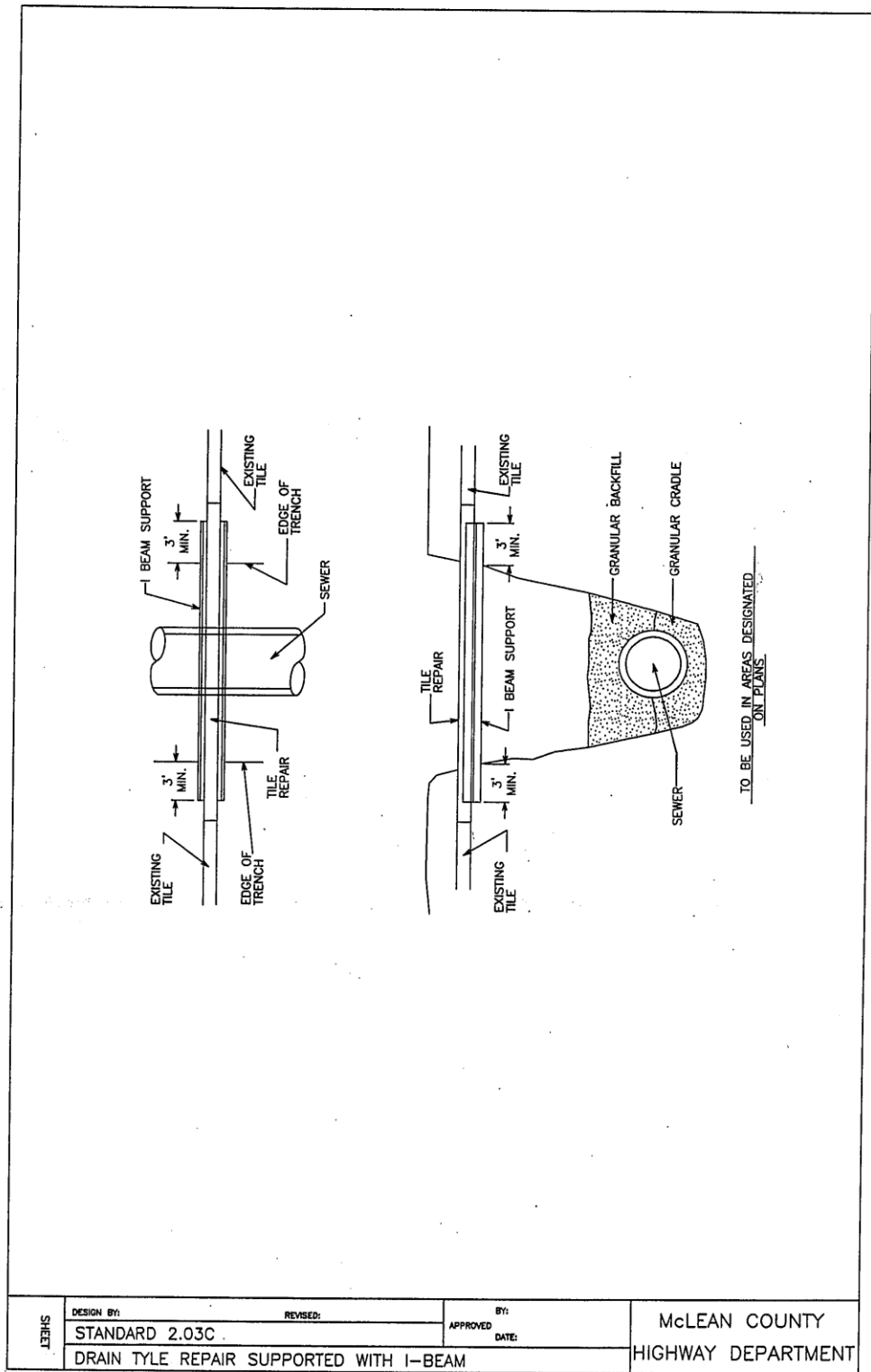


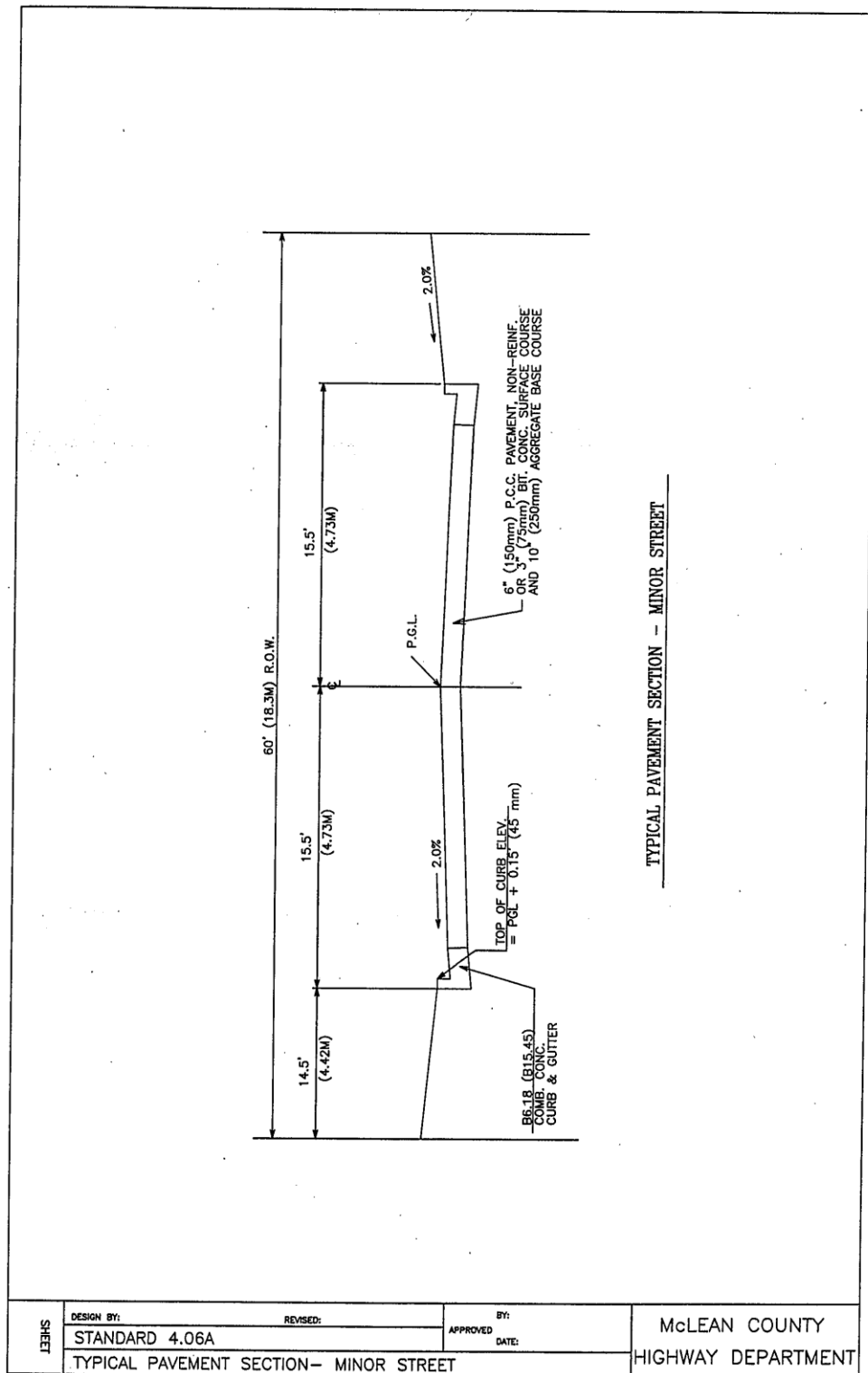
TYPE D

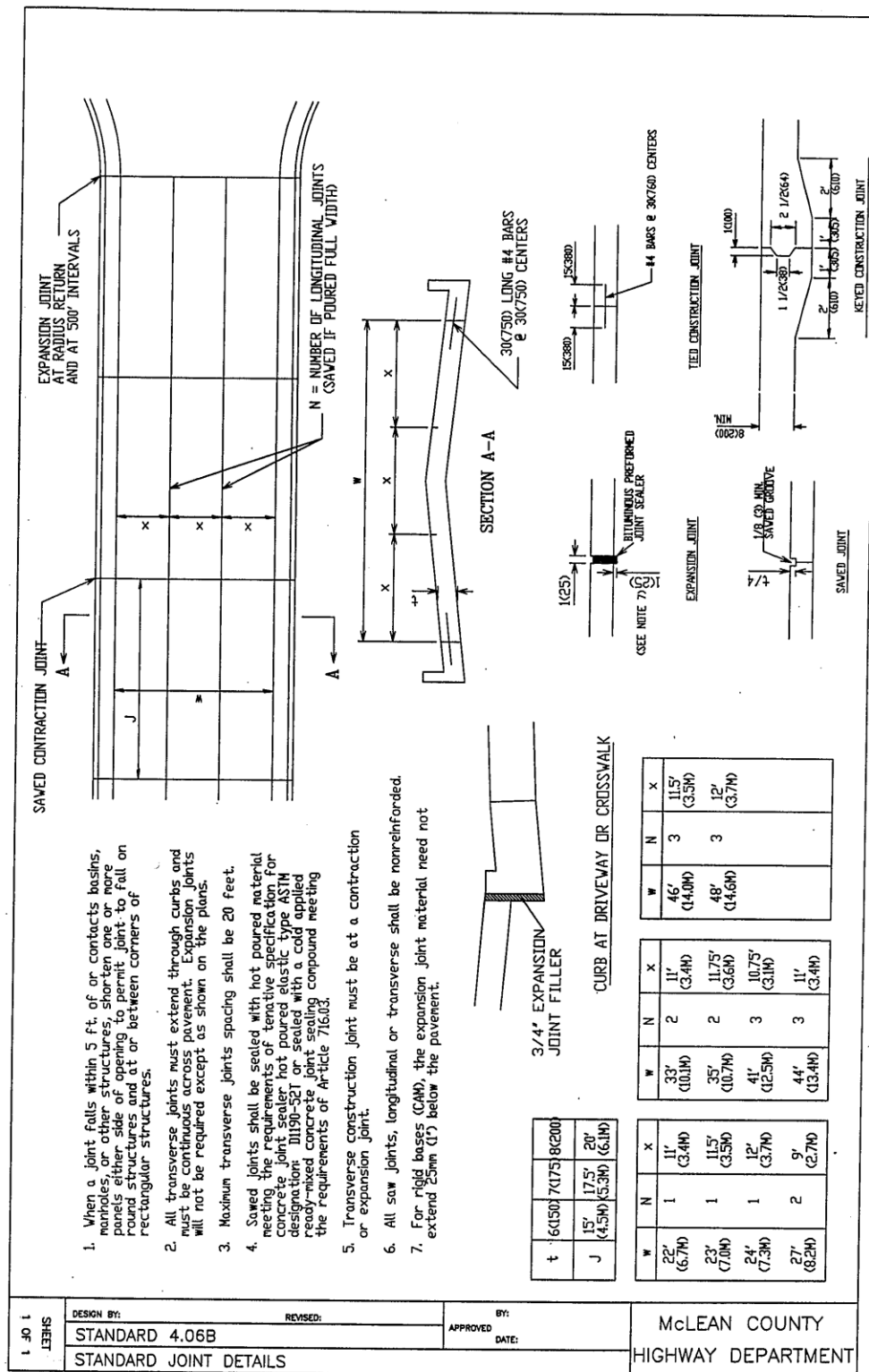
"T" = REPLACEMENT BRICK THICKNESS  
 "W" = UTILITY TRENCH WIDTH

1. Existing Brick removed for excavation are to be salvaged for material in new surface of patch whenever possible.
2. Specimens of New Bricks to be used in surface of patch are to be submitted to the Director of Engineering & Water for approval prior to placement.
3. Replacement Bricks are to be placed in a one half inch (1/2") thick mortar bed after concrete base course has cured. Voids between Bricks are to be filled with fine aggregate sand.

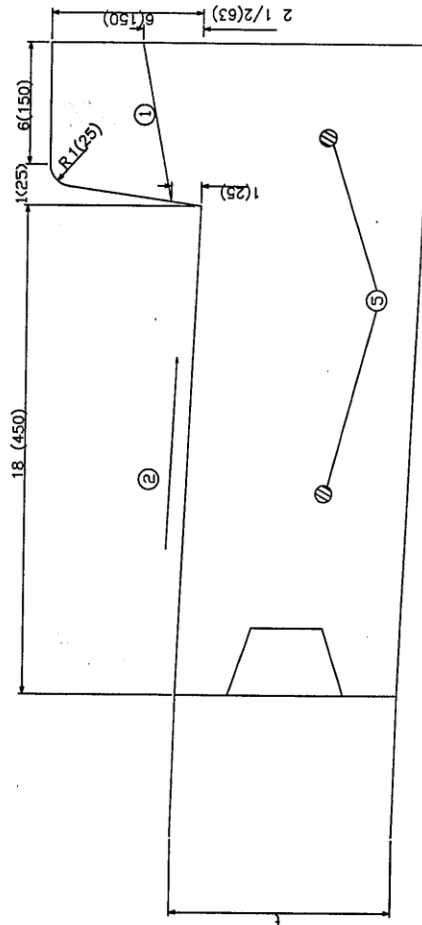
SHEET 1 OF 1	DESIGN BY:	REVISED:	BY:	McLEAN COUNTY HIGHWAY DEPARTMENT
	STANDARD 2.03B		APPROVED	
	PAVEMENT PATCHING DETAILS (TYPE D)		DATE:	







COMBINATION CONCRETE CURB AND GUTTER  
TYPE B-6.18 (B 15.45)



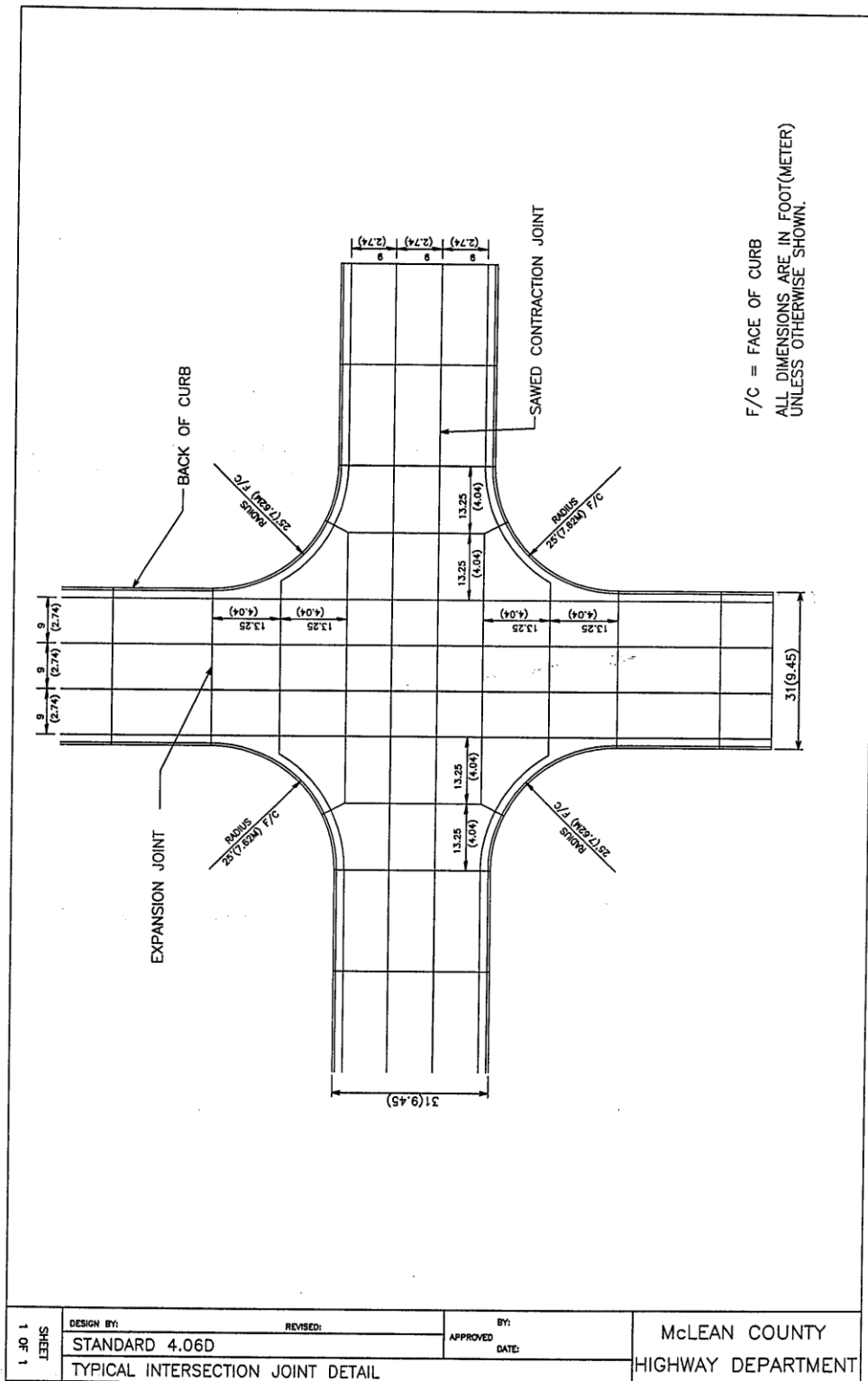
GENERAL NOTES

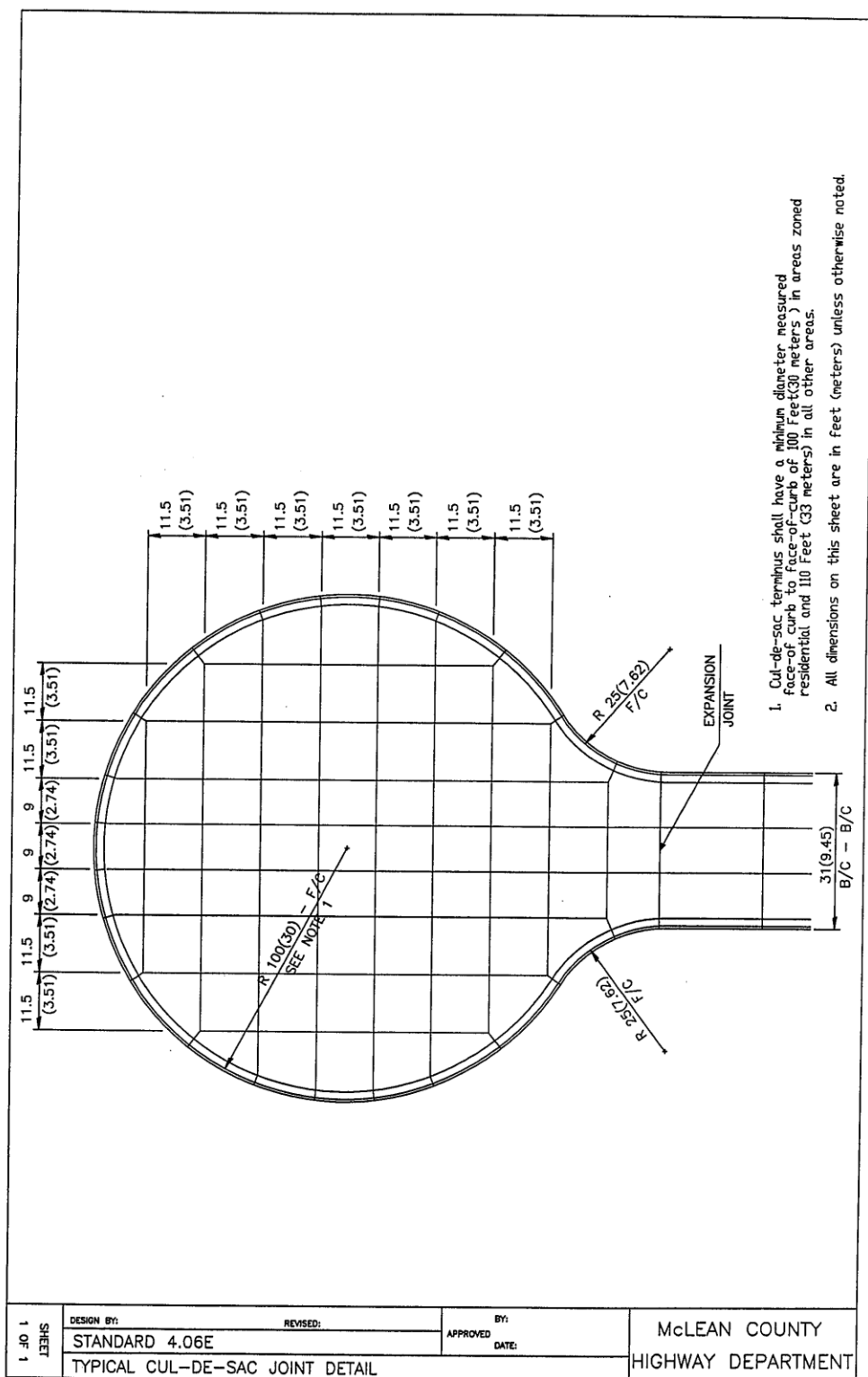
- ① DEPRESS AT DRIVEWAYS
- ② SLOPE 3/4 IN/FT (20mm/m) EXCEPT AT INTERSECTIONS
- ③ #4 REBARS CONTINUOUS THROUGHOUT (USED ONLY WHEN ADJACENT TO BITUMINOUS, BRICK OR AGGREGATE BASE)
- t = THICKNESS OF PAVEMENT.

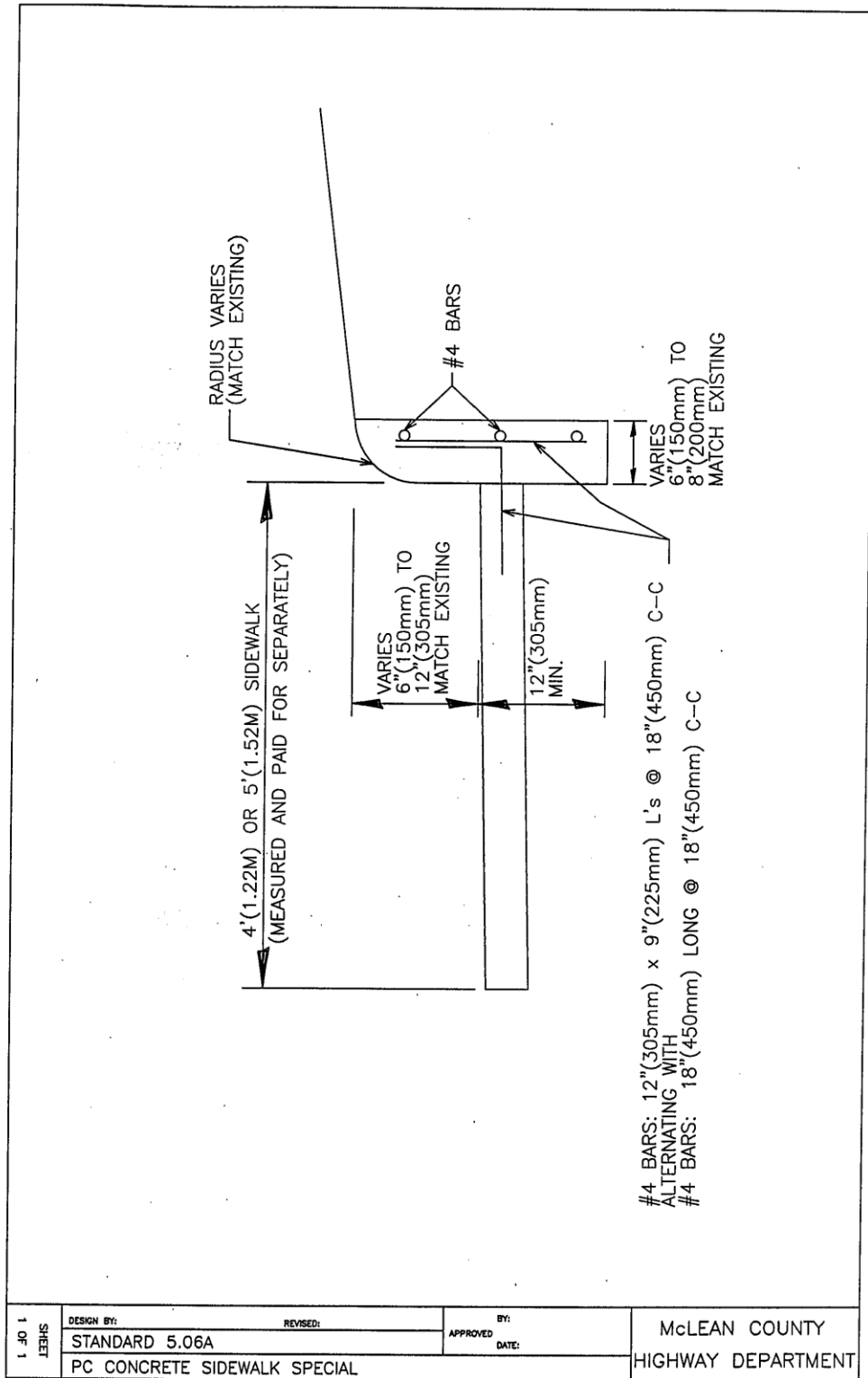
ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

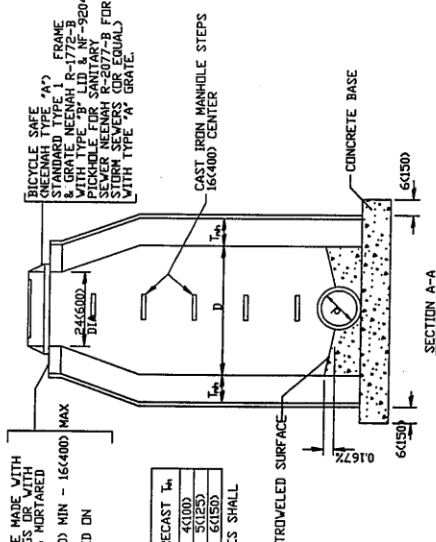
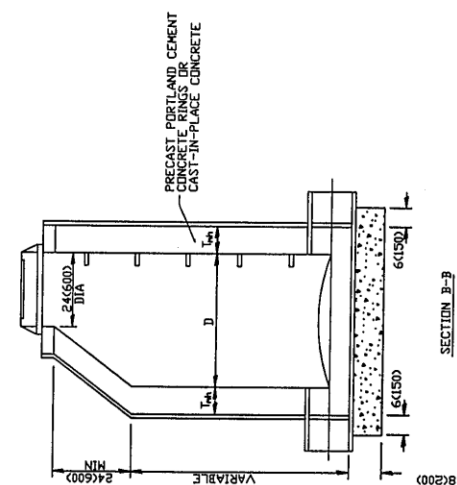
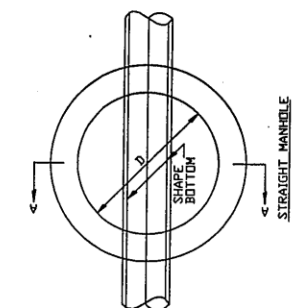
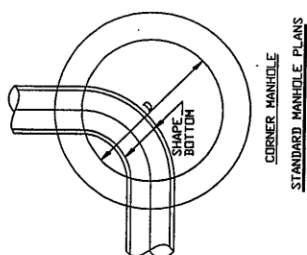
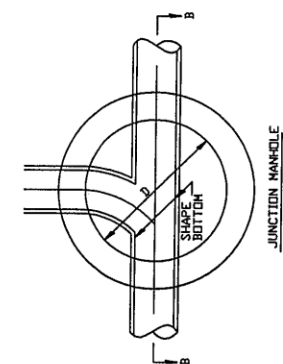
SHEET 1 OF 1	DESIGN BY:	REVISED:	BY:	McLEAN COUNTY HIGHWAY DEPARTMENT
	STANDARD 4.06C		APPROVED	
	BARRIER CURB & GUTTER DETAIL		DATE:	

# McLEAN COUNTY MANUAL OF PRACTICE





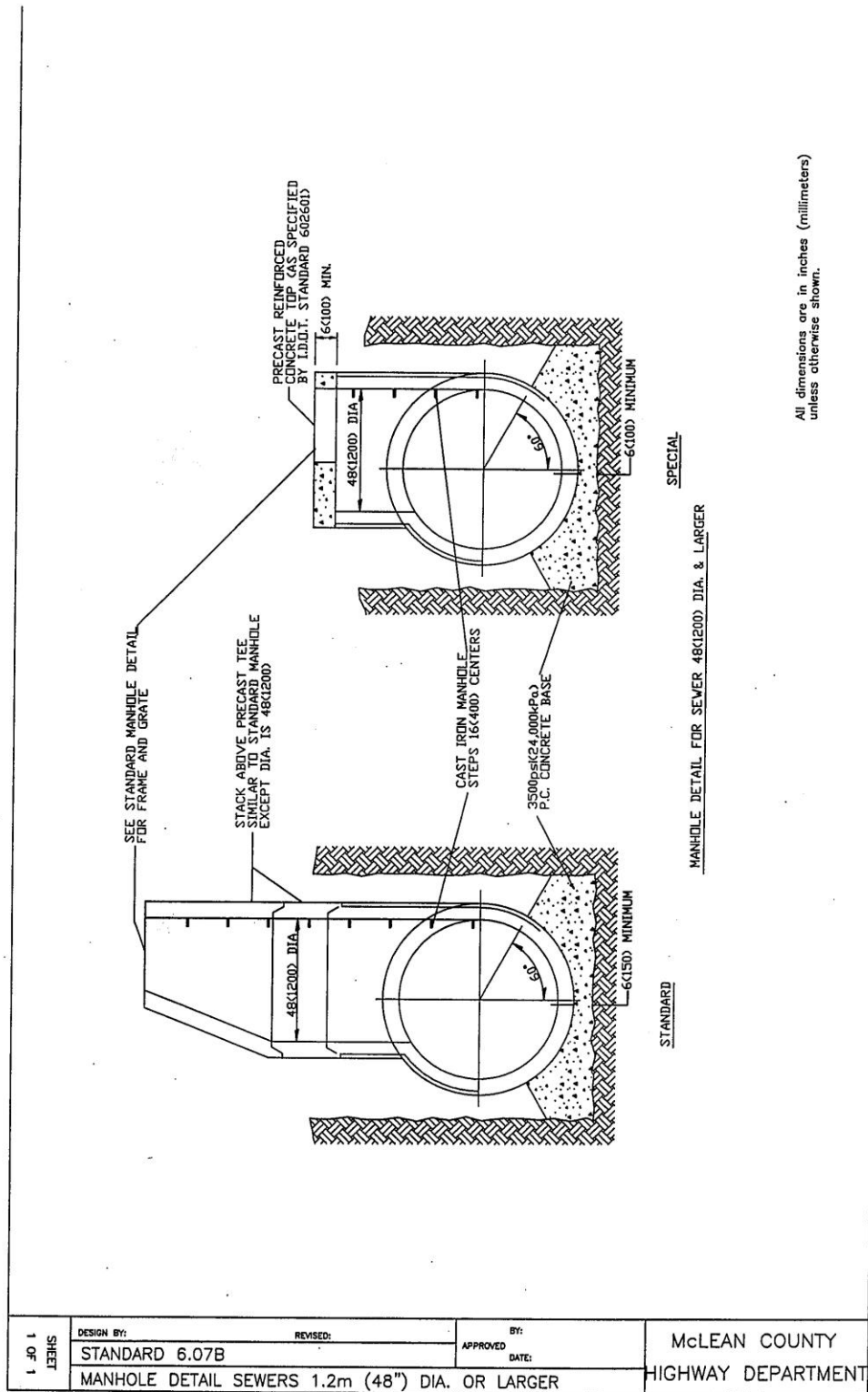




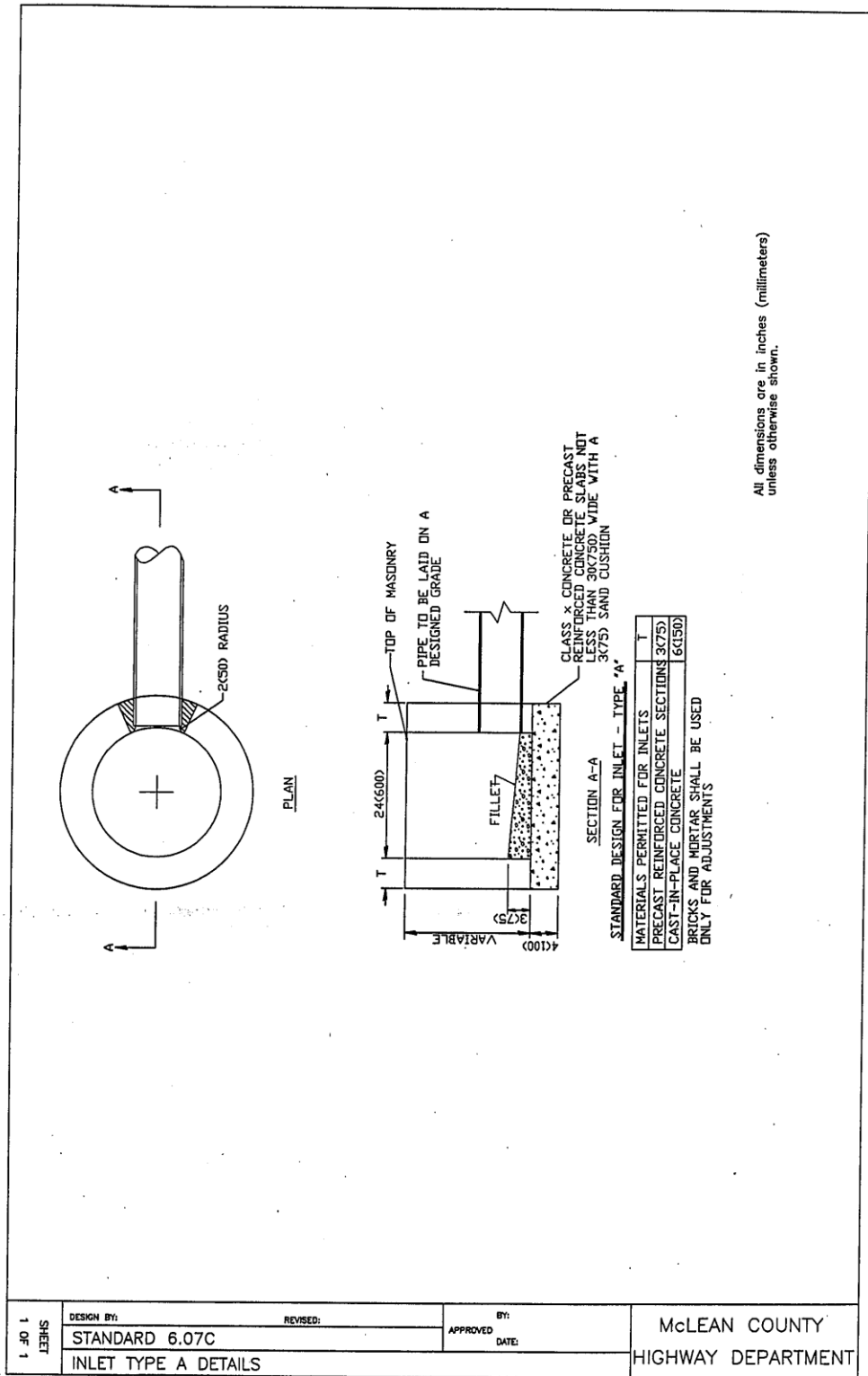
DIA OF SEWER	DIA OF MANHOLE	PRECAST $T_m$
8(200) THRU 30(750)	48(1200)	4(100)
33(825) THRU 48(1200)	60(1500)	5(125)
54(1350)	72(1800)	6(150)

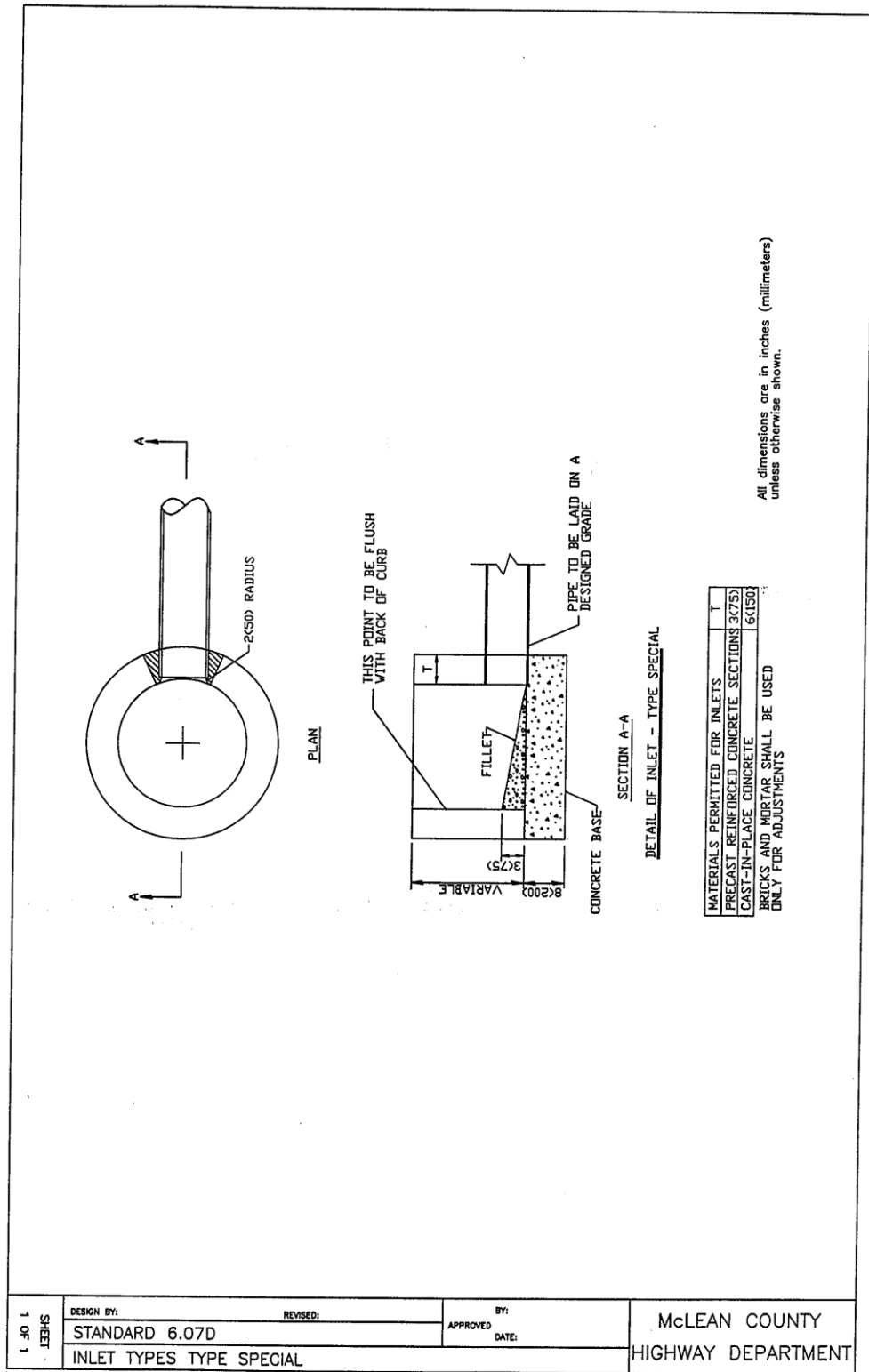
ALL CAST-IN-PLACE MANHOLES SHALL BE  $T_m = 6(150)$  THICK

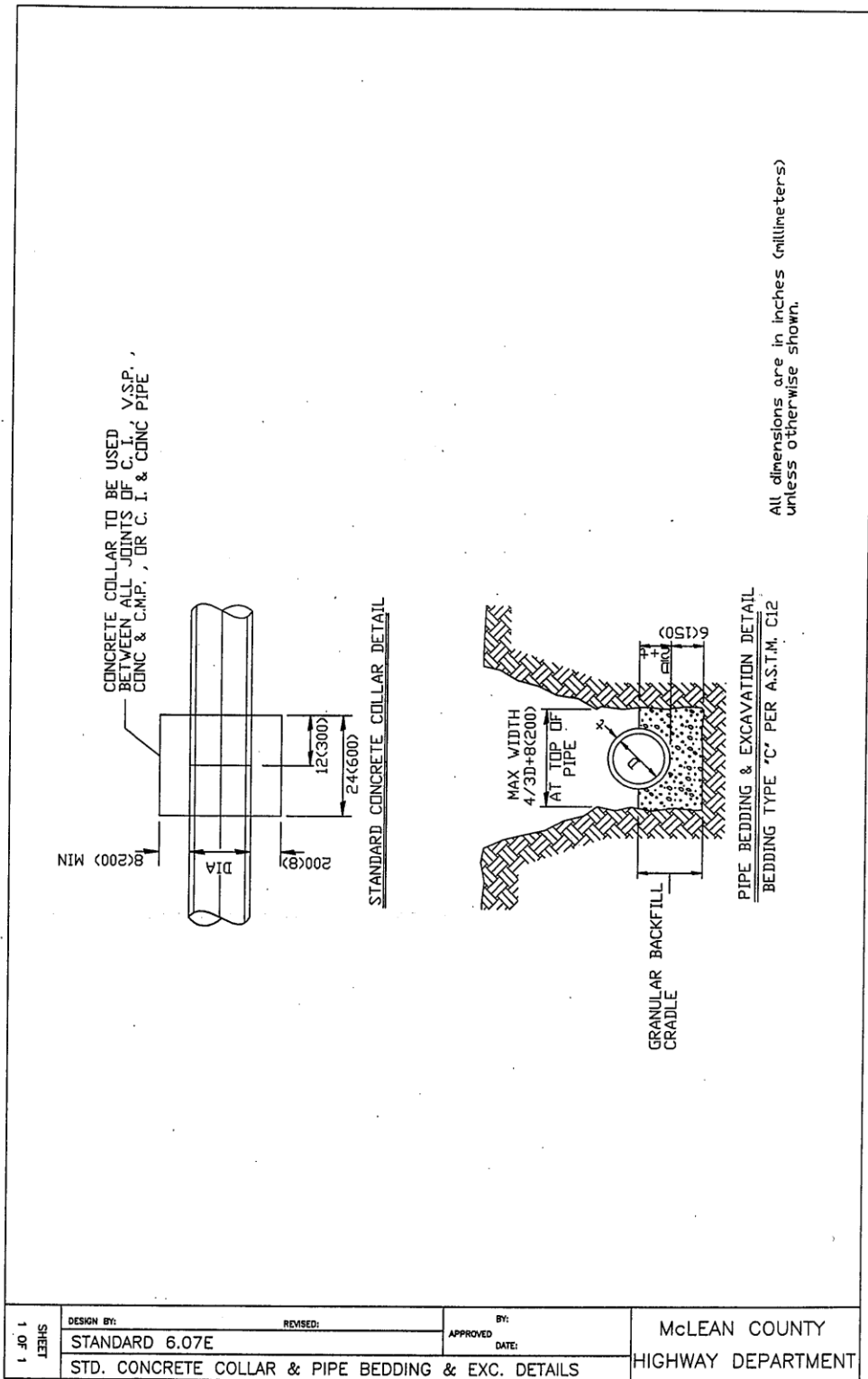
All dimensions are in inches (millimeters) unless otherwise shown.



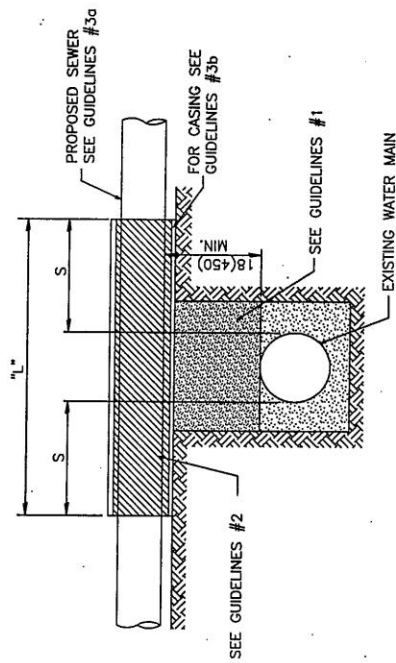
All dimensions are in inches (millimeters) unless otherwise shown.







PROPOSED SEWER LINE WITH 18(450) MINIMUM  
VERTICAL SEPARATION ABOVE EXISTING WATER MAIN



NOTE: "S" THE LENGTH NECESSARY  
TO PROVIDE 10' (3 M) OF SEPARATION  
AS MEASURED PERPENDICULAR TO  
THE EXISTING WATER MAIN.

GUIDELINES

1. IF SELECT GRANULAR BACKFILL EXISTS: REMOVE  
WITHIN WIDTH OF PROPOSED SEWER TRENCH AND  
REPLACE WITH SELECT EXCAVATED MATERIAL  
(CLASS IV) AND COMPACT.
2. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR  
BACKFILL TO 12(300) OVER TOP OF SEWER AND  
USE SELECT EXCAVATED MATERIAL (CLASS IV) AND  
COMPACT THE LENGTH OF "L".
3. a. CONSTRUCT "L" OF PROPOSED SEWER OF  
WATER MAIN MATERIAL AND PRESSURE TEST, OR;  
b. USE "L" OF WATER MAIN MATERIAL FOR  
CASING OF PROPOSED SEWER AND SEAL ENDS OF  
CASING.

All dimensions are in inches (millimeters)  
unless otherwise shown.

SHEET  
1 OF 1

DESIGN BY:

REVISED:

BY:  
APPROVED  
DATE:

STANDARD 6.07F

WATER & SEWER SEPARATION REQUIREMENTS (VERT)

McLEAN COUNTY  
HIGHWAY DEPARTMENT

<p>1 OF 1 SHEET</p>	<p>DESIGN BY: _____</p> <p>STANDARD 6.07G</p> <p>WATER &amp; SEWER SEPARATION REQUIREMENTS (VERT)</p>	<p>REVISED: _____</p> <p>APPROVED DATE: _____</p>	<p>BY: _____</p> <p>McLEAN COUNTY HIGHWAY DEPARTMENT</p>
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PROPOSED SEWER LINE BELOW EXISTING WATER MAIN  
WITH 450(18) MINIMUM VERTICAL SEPARATION

PROPOSED SEWER LINE BELOW EXISTING WATER MAIN  
WITH LESS THAN 18(450) VERTICAL SEPARATION

**GUIDELINES**

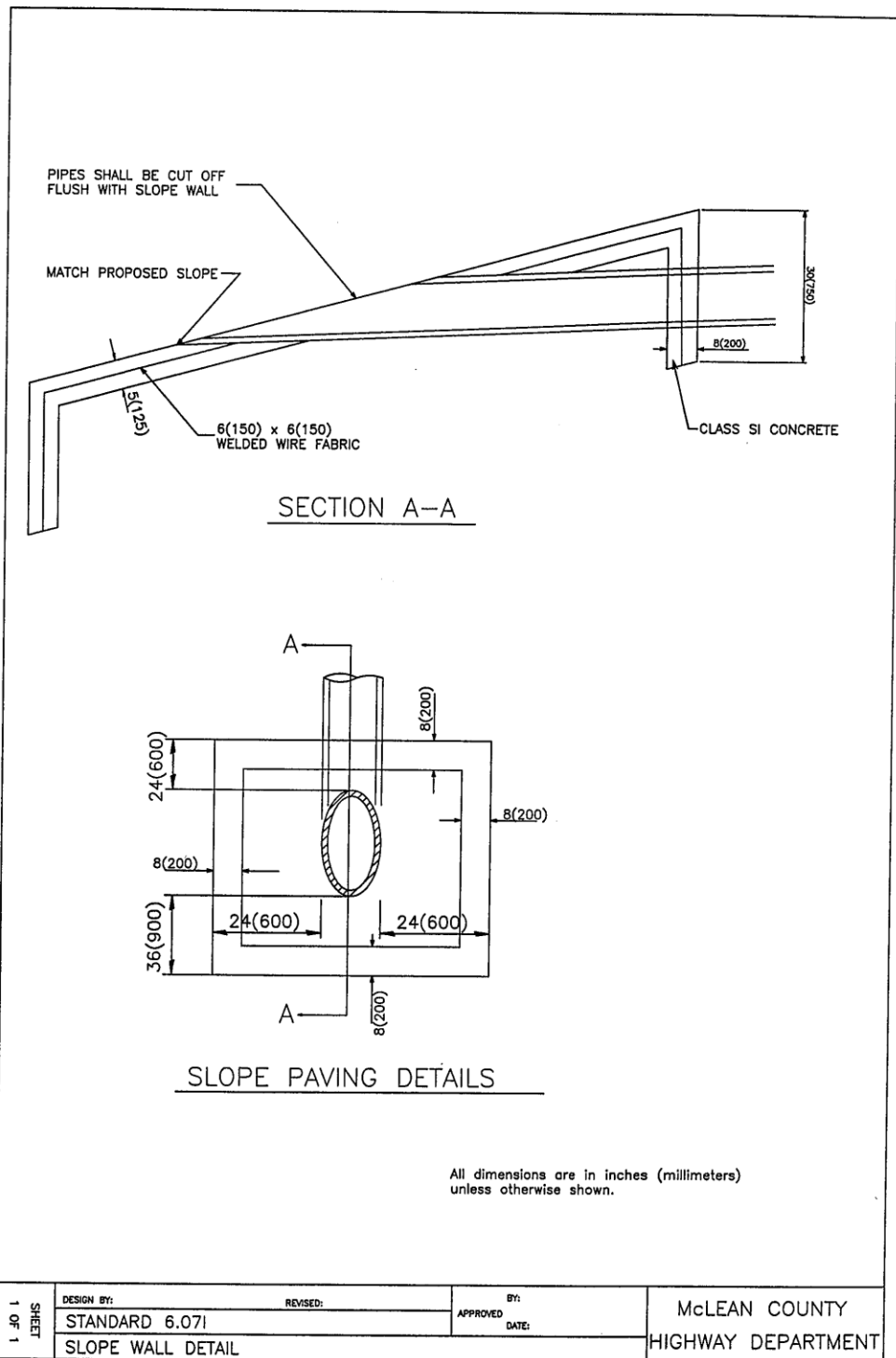
1. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.
1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO 12(300) OVER TOP OF SEWER AND USE SELECT GRANULAR EMBEDMENT (SEE #1) AND COMPACT FOR "S" ON EACH SIDE OF THE WATER MAIN.
- 2a. CONSTRUCT "L" OF PROPOSED SEWER OS WATER MAIN MATERIAL AND PRESSURE TEST, OR:
  - b. USE "L" OF WATER MAIN MATERIAL FOR CASING OF PROPOSED SEWER AND SEAL ENDS OF CASING.
3. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.

**NOTE:** "S" THE LENGTH NECESSARY TO PROVIDE 3m(10') OF SEPARATION MEASURED PERPENDICULAR TO THE EXISTING WATER MAIN.

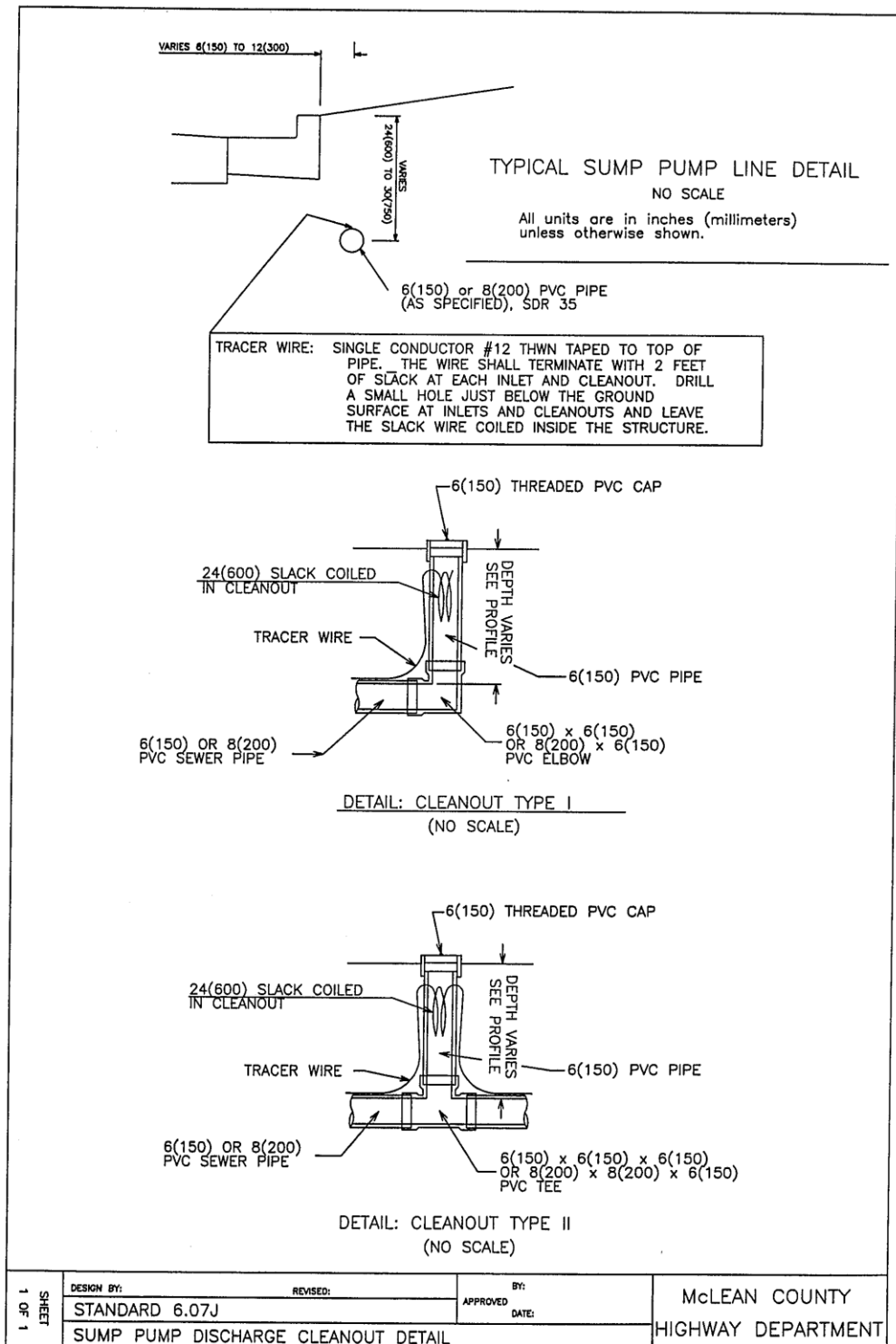
All dimensions are in inches (millimeters) unless otherwise shown.



# McLEAN COUNTY MANUAL OF PRACTICE



# McLEAN COUNTY MANUAL OF PRACTICE



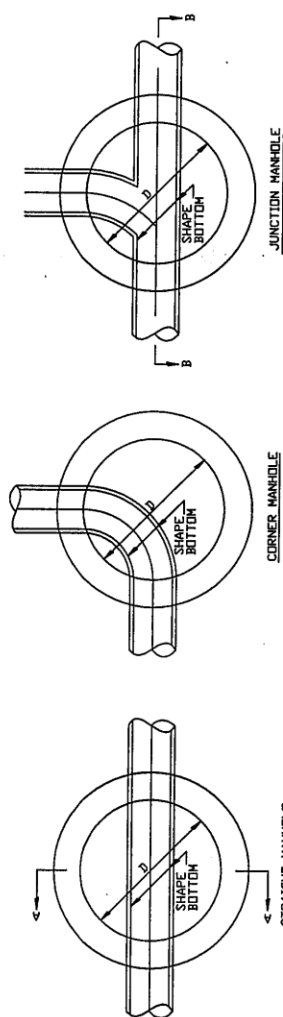
SHEET 1 OF 1	DESIGN BY:	REVISED:	BY:	McLEAN COUNTY HIGHWAY DEPARTMENT
	STANDARD 6.07K		APPROVED DATE:	
	DETENTION UNDERDRAIN CLEANOUT & JUNCTION			

**JUNCTION TYPE 1**  
NOT TO SCALE  
NOTE: MORTAR ALL SURFACES AND CREVICES.

**JUNCTION TYPE 2**  
NOT TO SCALE  
NOTE: MORTAR ALL SURFACES AND CREVICES.

**INSTALLATION OF  
PIPE UNDERDRAIN (SPECIAL)**

ALL DIMENSION ARE IN INCHES (MILLIMETERS)  
UNLESS OTHERWISE SHOWN.

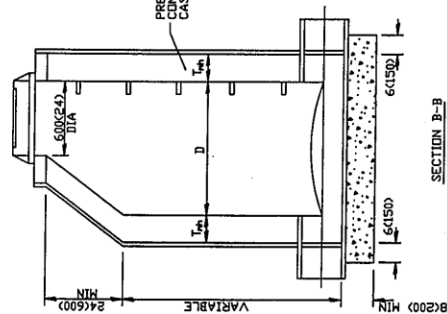


FINAL ADJUSTMENT TO BE MADE WITH  
PRECAST ADJUSTING RINGS OR WITH  
BRICKS LAID RADIALLY & MORTARED  
ADJUSTMENT RANGE: 4(100) MIN - 16(4  
MASTIC IS NOT PERMITTED ON  
ADJUSTING RINGS

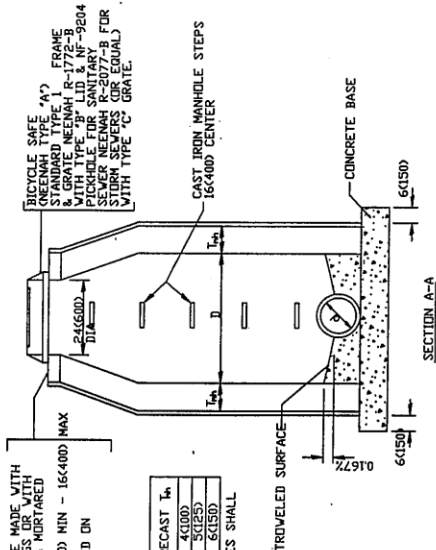
DIA OF SEWER	DIA OF MANHOLE	PRECAST $T_h$
8(200) THRU 30(750)	48(1200)	4(100)
33(825) THRU 48(1200)	60(1500)	5(125)
54(1350)	72(1800)	6(150)

ALL CAST-IN-PLACE MANHOLES SHALL BE  $T_h$  = 6(150) THICK

PRECAST PORTLAND CEMENT  
CONCRETE RINGS OR  
CAST-IN-PLACE CONCRETE



All dimensions are in inches (millimeters) unless otherwise shown.



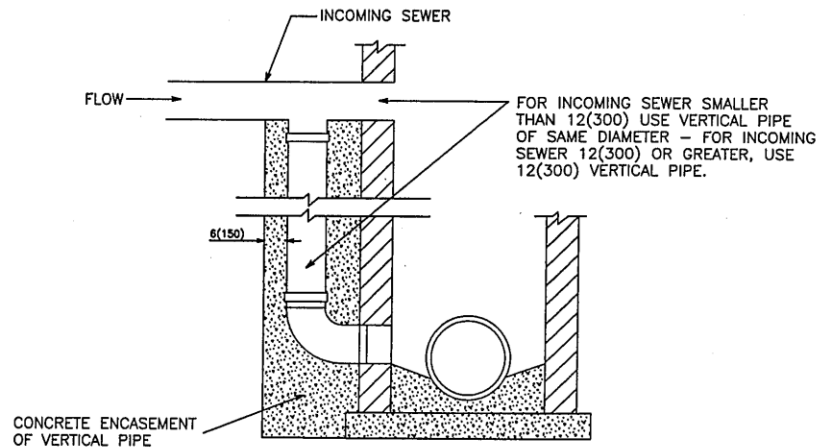
**SHEET**  
**1 OF 1**

DESIGN BY:	REVISION:
STANDARD 7.07A	
STANDARD MANHOLE DETAIL	

APPROVED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

McLEAN COUNTY  
HIGHWAY DEPARTMENT

# McLEAN COUNTY MANUAL OF PRACTICE



DROP MANHOLE CONNECTION

## NOTES

PAYMENT FOR DROP MANHOLE CONNECTION TO BE MADE AT CONTRACT UNIT PRICE PER EACH "DROP MANHOLE CONNECTION".

TO BE USED IN CONJUNCTION WITH TYPE "A" MANHOLES WHERE SEWER ENTERS 24(600) OR MORE ABOVE LOWEST INVERT. NOT TO BE USED FOR INLET OR CATCH BASIN CONNECTION.

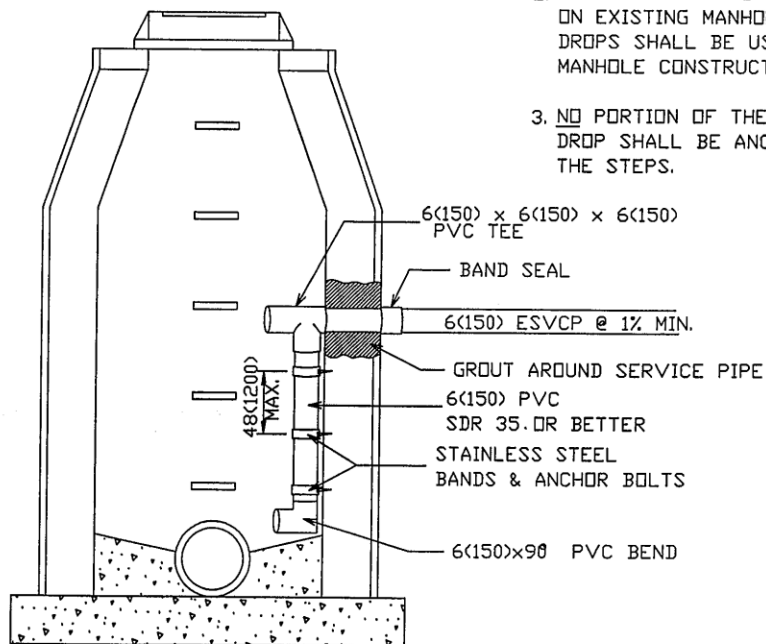
THIS DETAIL APPLIES TO INCOMING SEWERS OF 18(450) DIA. OR LESS.

1 OF 1 SHEET	DESIGN BY:	REVISED:	BY:	McLEAN COUNTY HIGHWAY DEPARTMENT
	STANDARD 7.07B-1		APPROVED	
	STANDARD DROP MANHOLE DETAILS		DATE:	

## INSIDE SERVICE DROP IN EXISTING SANITARY MANHOLE

### NOTES:

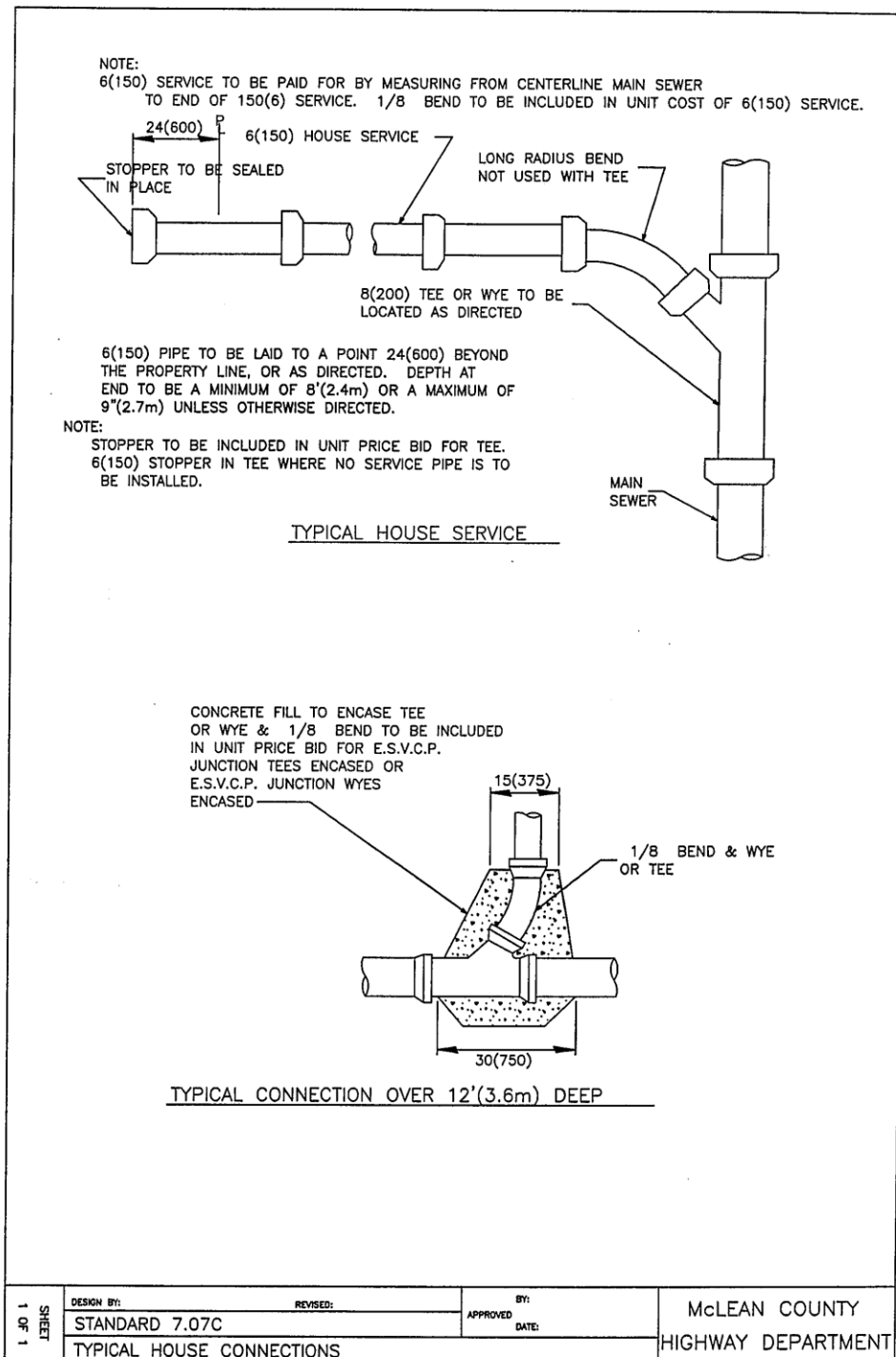
1. DROPS ARE REQUIRED WHEN INVERT OF SERVICE IS GREATER THAN 24(600) ABOUT BOTTOM OF MANHOLE.
2. INSIDE DROPS ARE ONLY ALLOWED ON EXISTING MANHOLES. OUTSIDE DROPS SHALL BE USED ON NEW MANHOLE CONSTRUCTION.
3. NO PORTION OF THE INSIDE DROP SHALL BE ANCHORED TO THE STEPS.

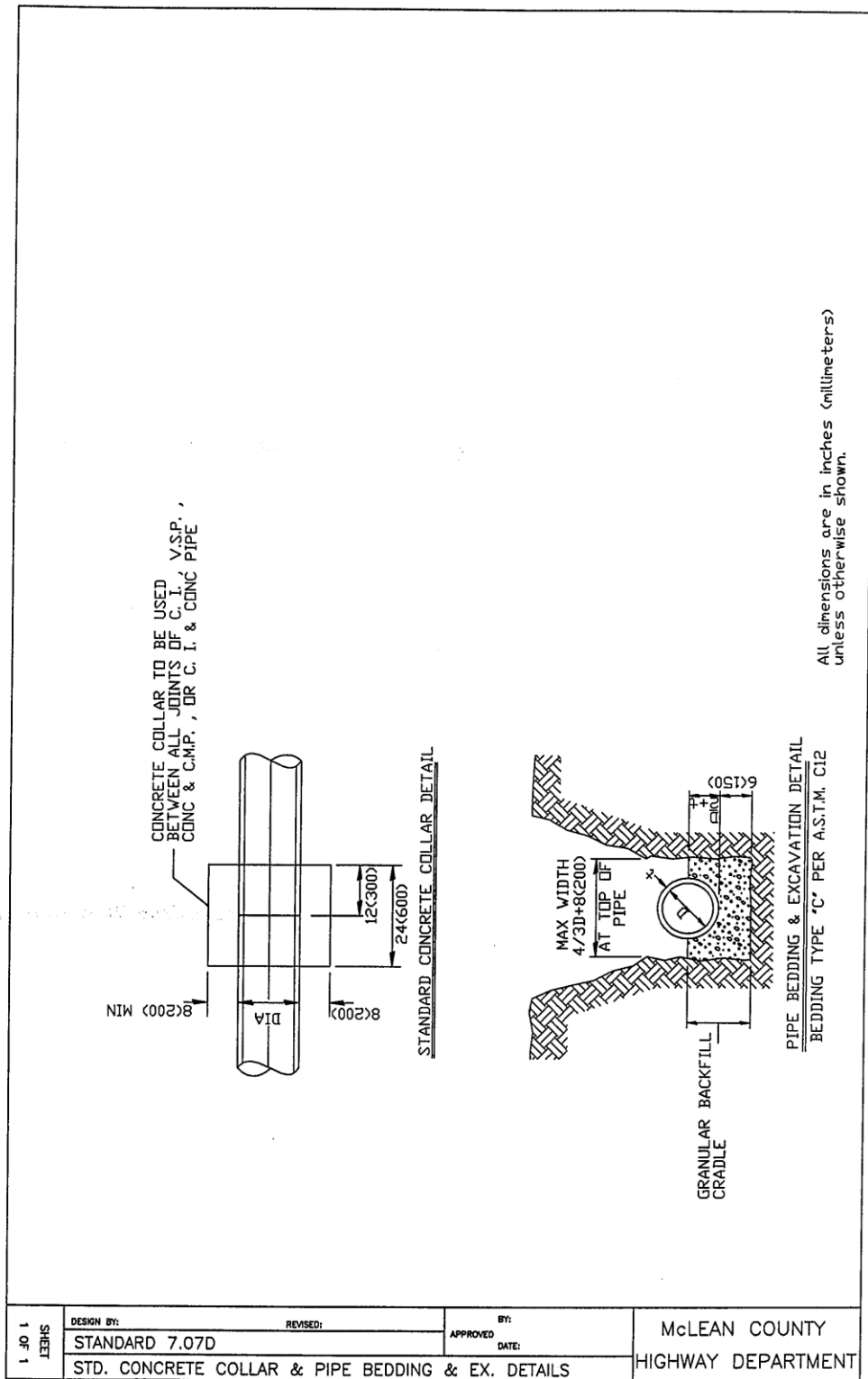


ALL DIMENSIONS ARE INCHES(MILLIMETERS)  
UNLESS OTHERWISE SHOWN.

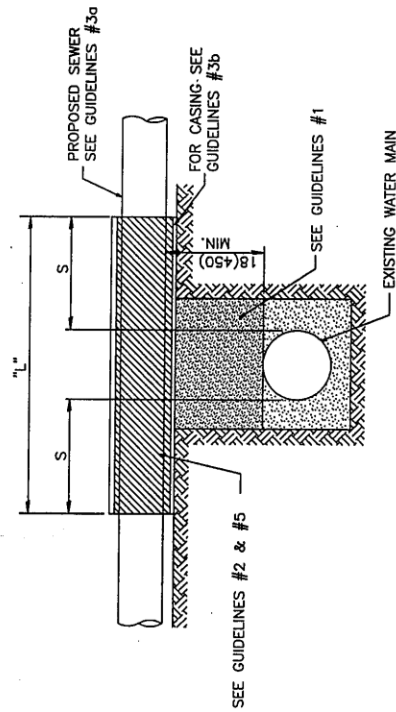
SHEET 1 OF 1	DESIGN BY:	REVISED:	BY:	McLEAN COUNTY HIGHWAY DEPARTMENT
	STANDARD 7.07B-2		APPROVED	
	INSIDE DROP SERVICE CONNECTION		DATE:	

# McLEAN COUNTY MANUAL OF PRACTICE





PROPOSED SEWER LINE WITH 18(450) MINIMUM  
VERTICAL SEPARATION ABOVE EXISTING WATER MAIN



GUIDELINES

1. IF SELECT GRANULAR BACKFILL EXISTS: REMOVE WITHIN WIDTH OF PROPOSED SEWER TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
2. OMIT SELECT GRANULAR CRADLE AND GRANULAR BACKFILL TO 12(300) OVER TOP OF SEWER AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L".
3.
  - a. CONSTRUCT "L" OF PROPOSED SEWER OF WATER MAIN MATERIAL AND PRESSURE TEST, OR;
  - b. USE "L" OF WATER MAIN MATERIAL FOR CASING OF PROPOSED SEWER AND SEAL ENDS OF CASING.
4. POINT LOADS SHALL NOT BE ALLOWED BETWEEN SEWER OR SEWER CASING AND WATER MAIN.
5. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.

NOTE: "S" THE LENGTH NECESSARY TO PROVIDE 10' (3m) OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING WATER MAIN.

All dimensions are in inches (millimeters) unless otherwise shown.

SHEET 1 OF 1	DESIGN BY:	REVISED:	BY:
	STANDARD 7.07E		APPROVED DATE:
	WATER & SEWER SEPARATION REQUIREMENTS (VERT)		
			McLEAN COUNTY HIGHWAY DEPARTMENT

1 OF 1 SHEET	DESIGN BY: _____ STANDARD 7.07F WATER & SEWER SEPARATION REQUIREMENTS (VERT)	REVISED: _____ BY: _____ APPROVED DATE: _____	McLEAN COUNTY HIGHWAY DEPARTMENT
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PROPOSED SEWER LINE BELOW EXISTING WATER MAIN  
WITH 18(450) MINIMUM VERTICAL SEPARATION

PROPOSED SEWER LINE BELOW EXISTING WATER MAIN  
WITH LESS THAN 18(450) VERTICAL SEPARATION

**GUIDELINES**

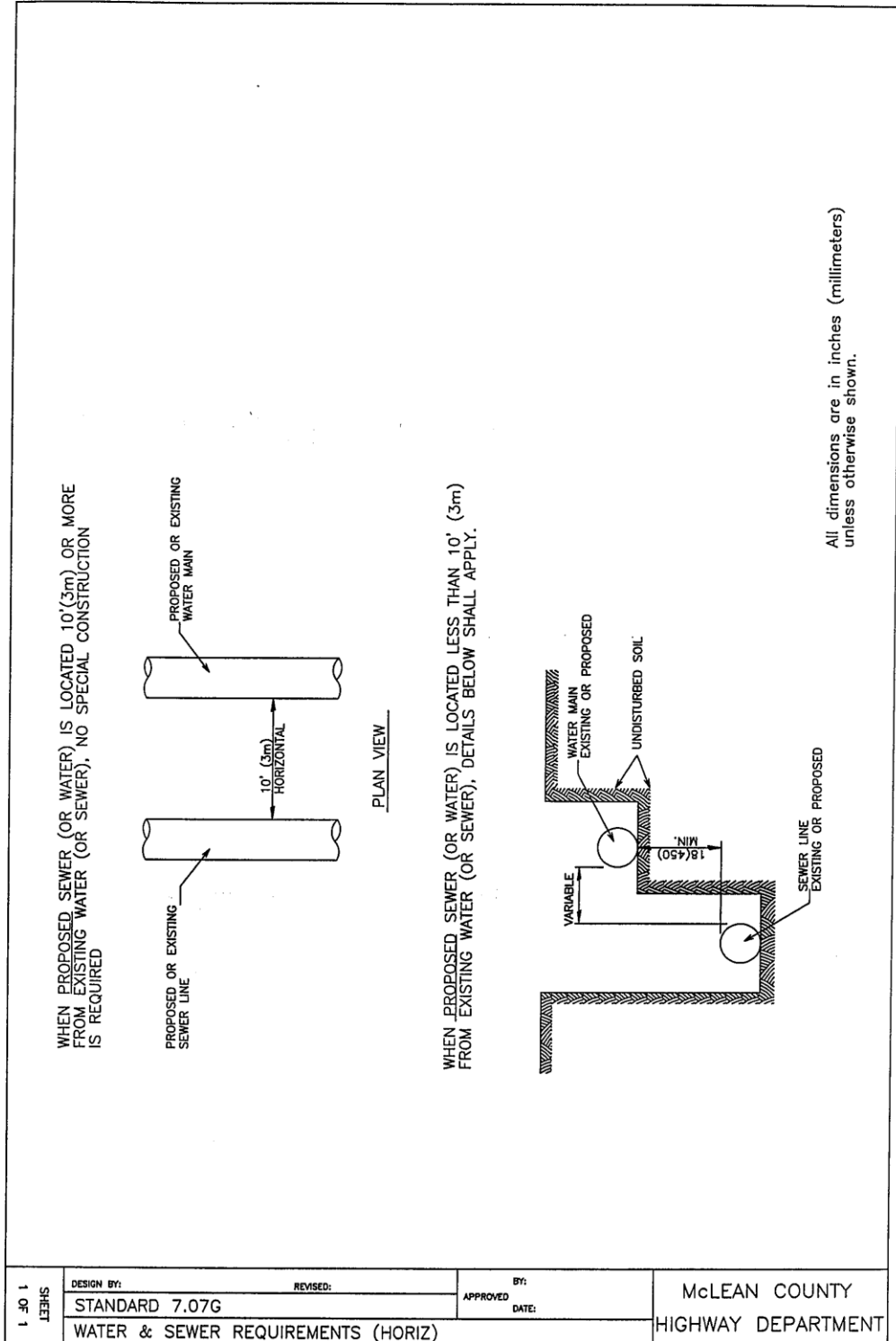
1. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.
2. MAINTAIN 18(450) MIN. VERTICAL SEPARATION FOR 10' (3m) HORIZONTALLY.

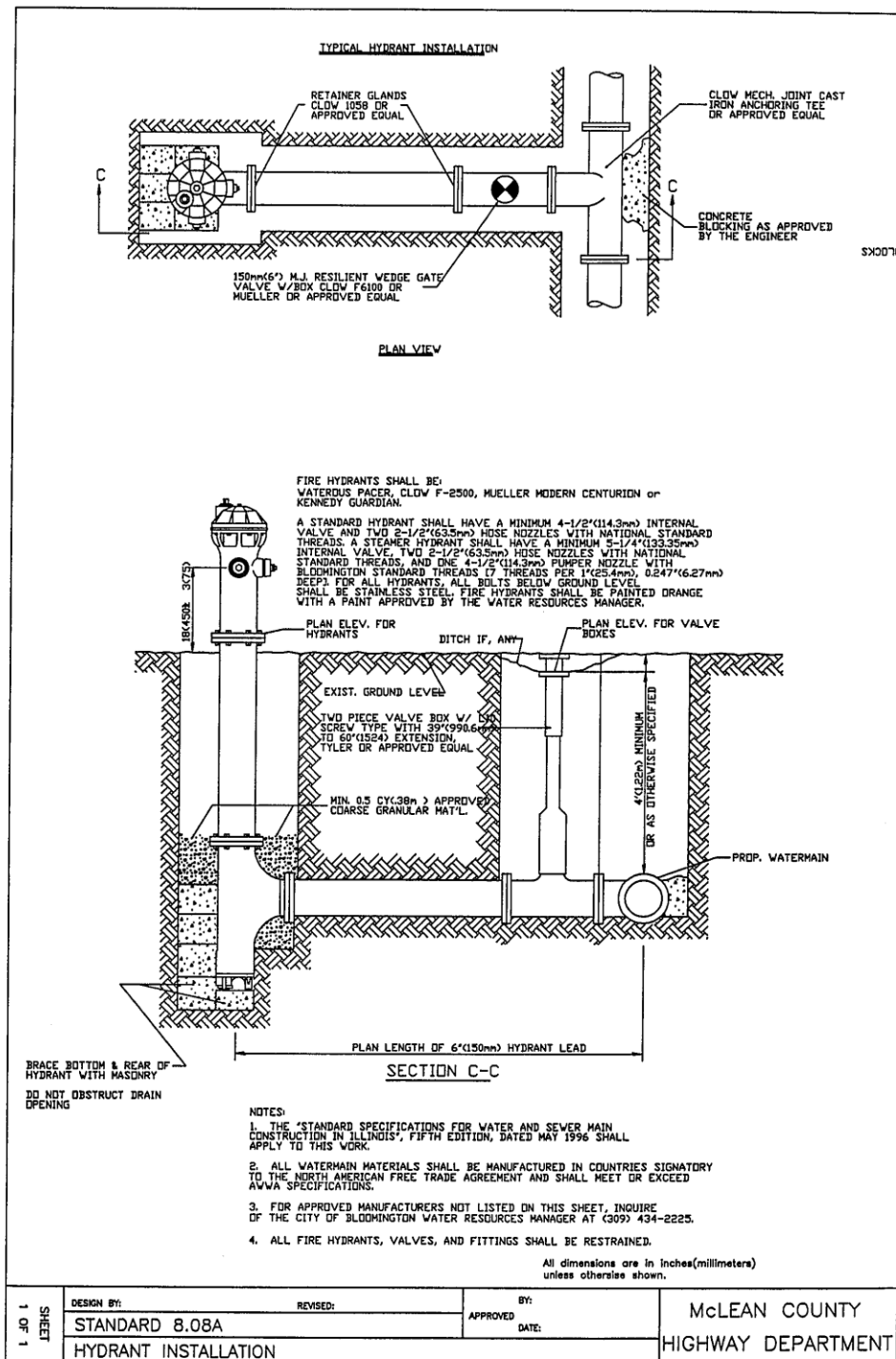
**GUIDELINES**

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BED (2000) OVER TOP OF SEWER AND USE SELECTED EMBEDMENT (SEE LIST) AND COMPACT FOR "S" ON EACH SIDE OF THE WATER MAIN.
- 2a. CONSTRUCT 2" OF PROPOSED SEWER OS WATER MAIN MATERIAL AND PRESSURE TEST, OR,
  - b. USE "L" OF WATER MAIN MATERIAL FOR CASING OF PROPOSED SEWER AND SEAL ENDS OF CASING.
  3. POINT LOADS SHALL NOT BE ALLOWED BETWEEN SEWER OR SEWER CASING AND WATER MAIN.
  4. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.

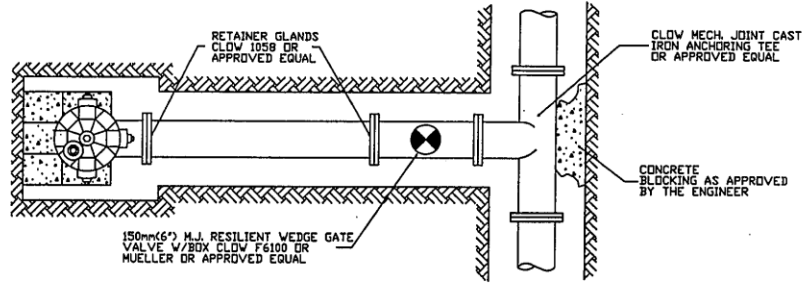
**NOTE:** "S" THE LENGTH NECESSARY TO PROVIDE 10'(3m) OF SEPARATION AS SHOWN. PROVIDE GRANULAR TO THE EXISTING WATER MAIN.

All dimensions are in inches(millimeters) unless otherwise shown.

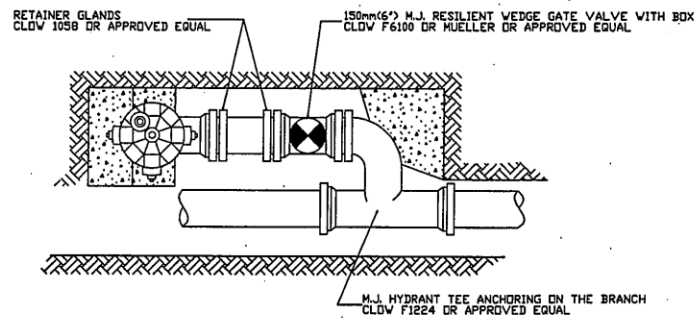




# McLEAN COUNTY MANUAL OF PRACTICE



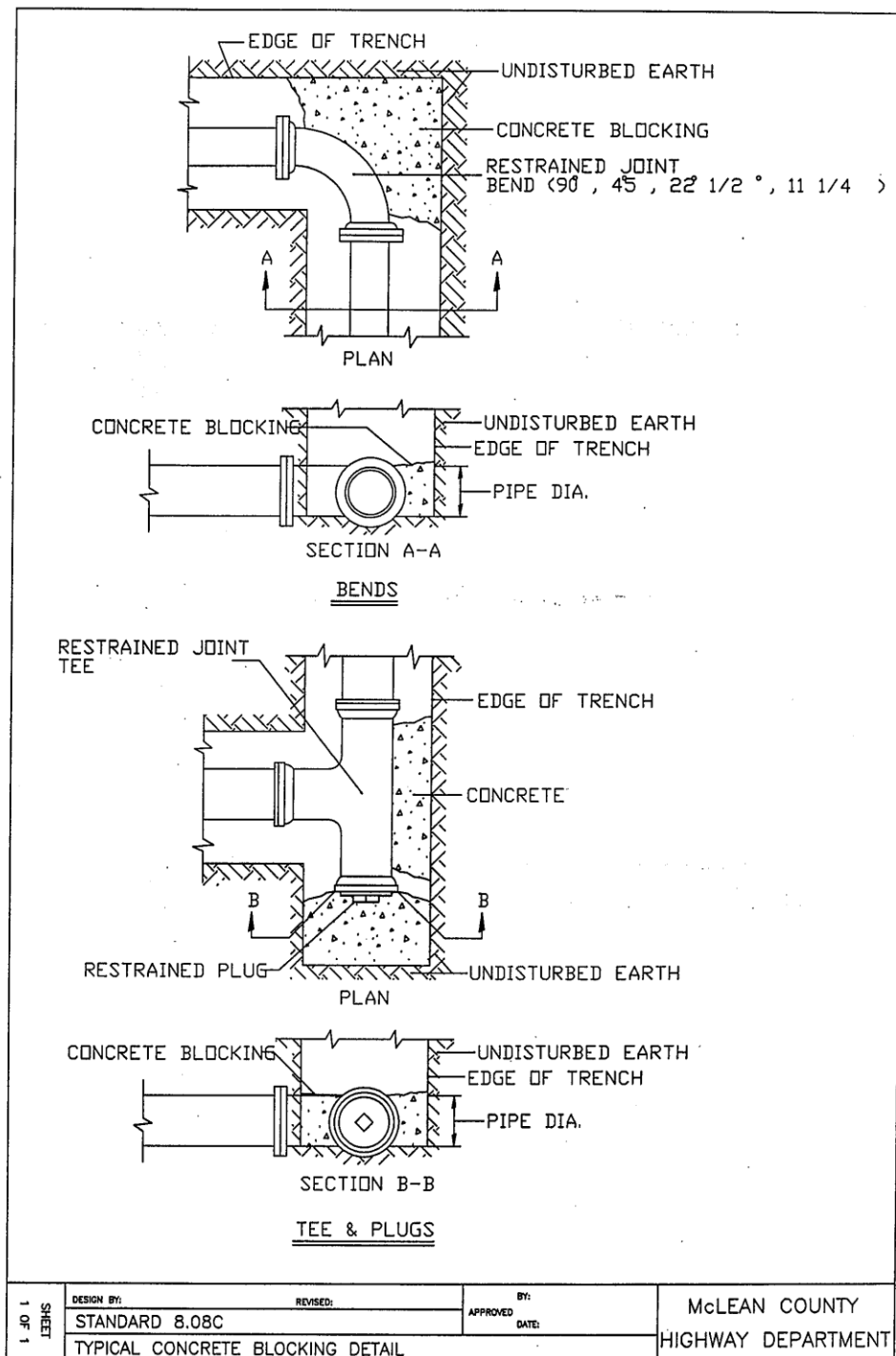
TYPICAL HYDRANT INSTALLATION



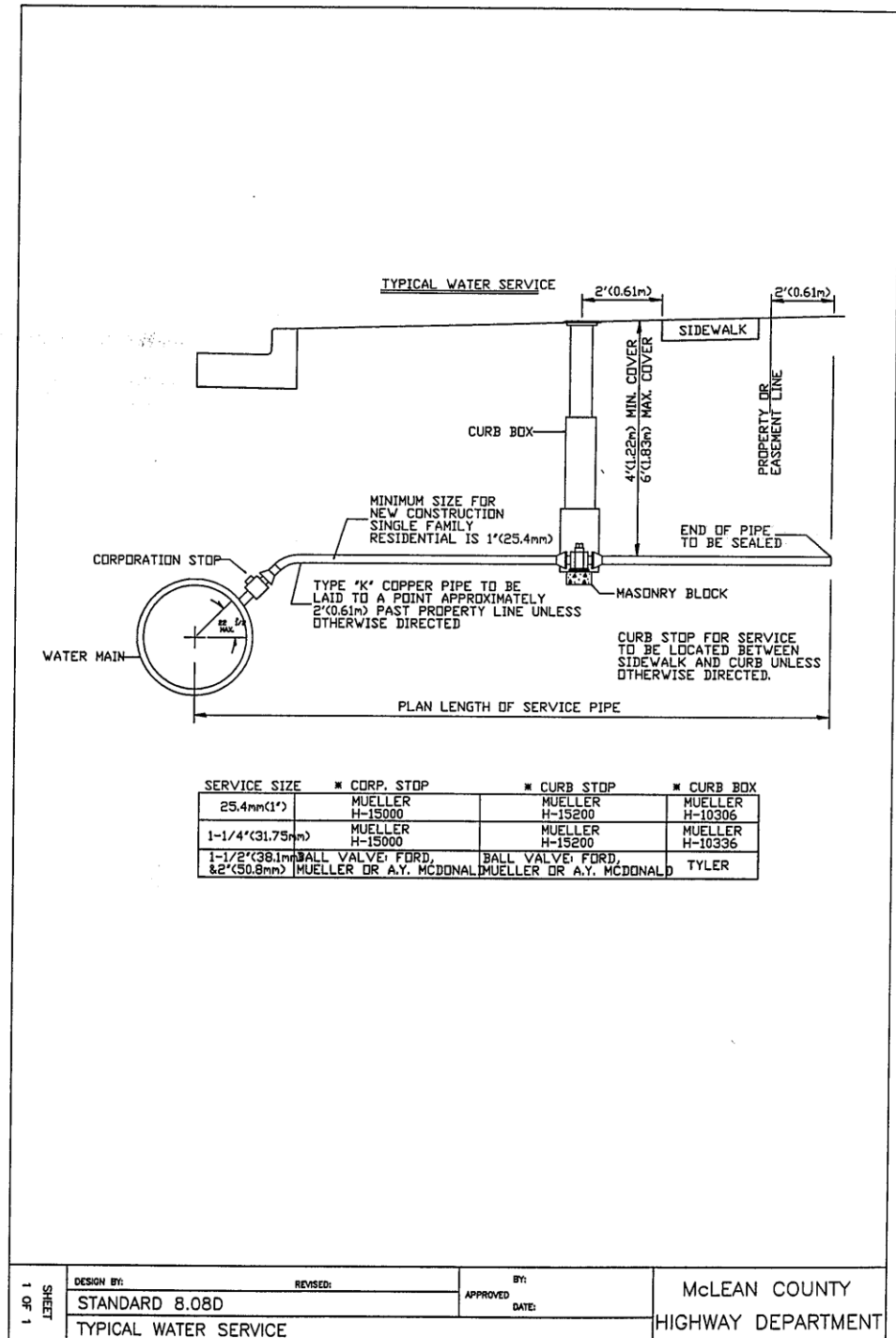
PARALLEL MOUNT HYDRANT INSTALLATION

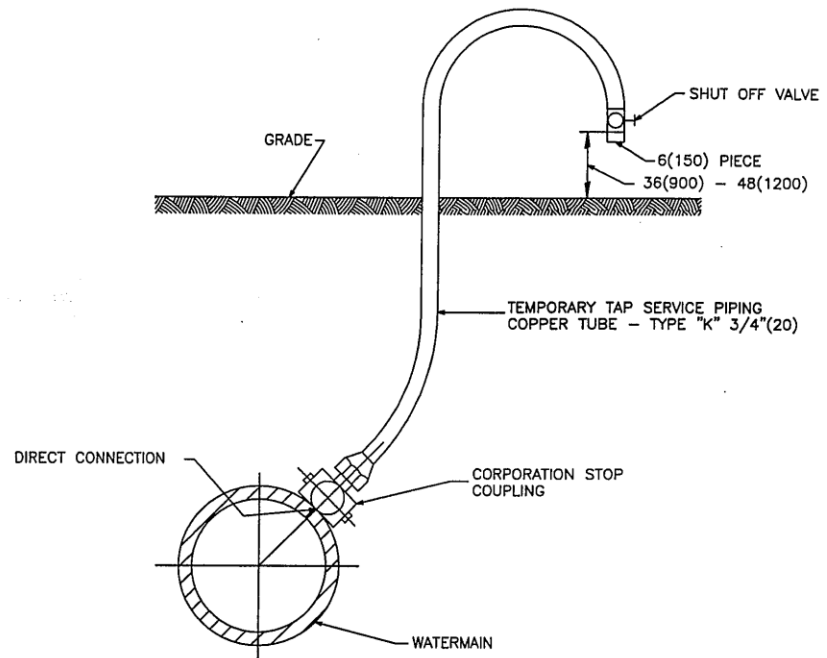
SHEET 1 OF 1	DESIGN BY:	REVISED:	BY:	McLEAN COUNTY HIGHWAY DEPARTMENT
	STANDARD 8.08B		APPROVED	
	HYDRANT CONNECTIONS		DATE:	

# McLEAN COUNTY MANUAL OF PRACTICE



# McLEAN COUNTY MANUAL OF PRACTICE

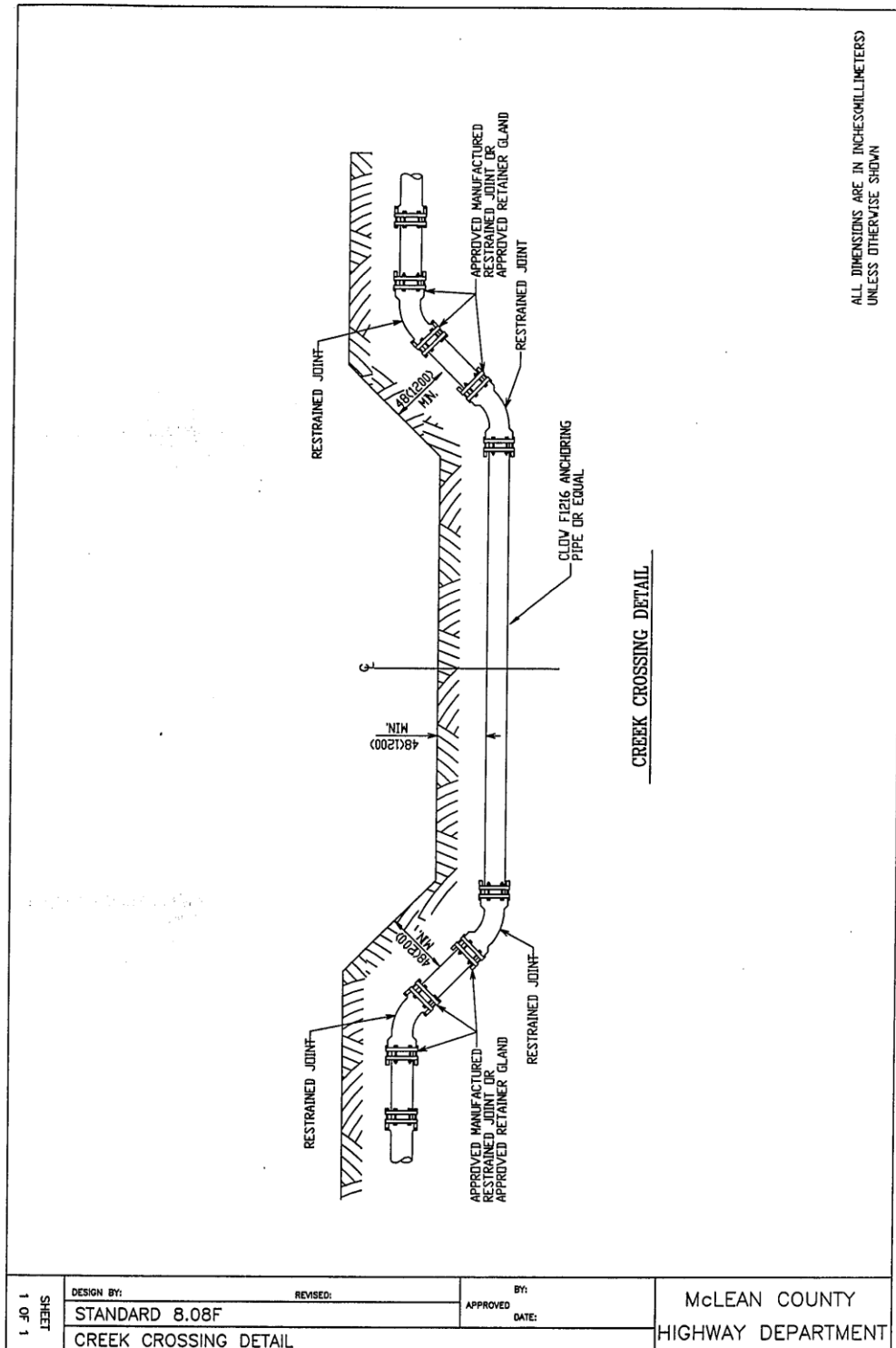




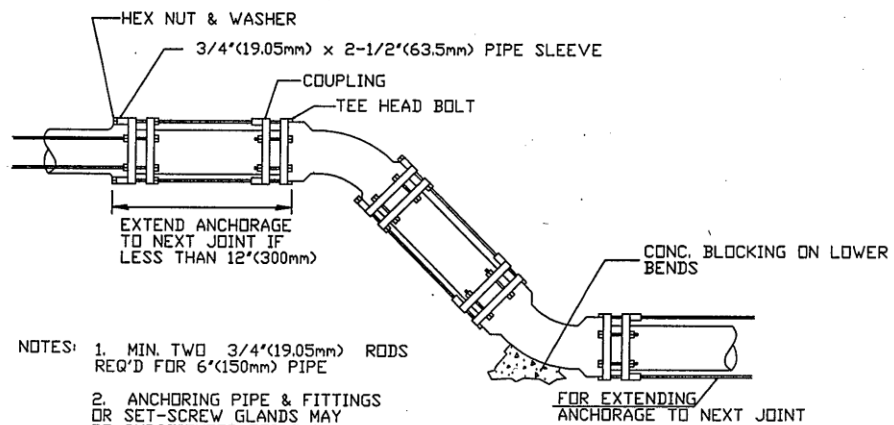
## SAMPLING & CHLORINATION SERVICE PIPING TAP

ALL DIMENSIONS ARE IN INCHES(MILLIMETERS)  
UNLESS OTHERWISE SHOWN.

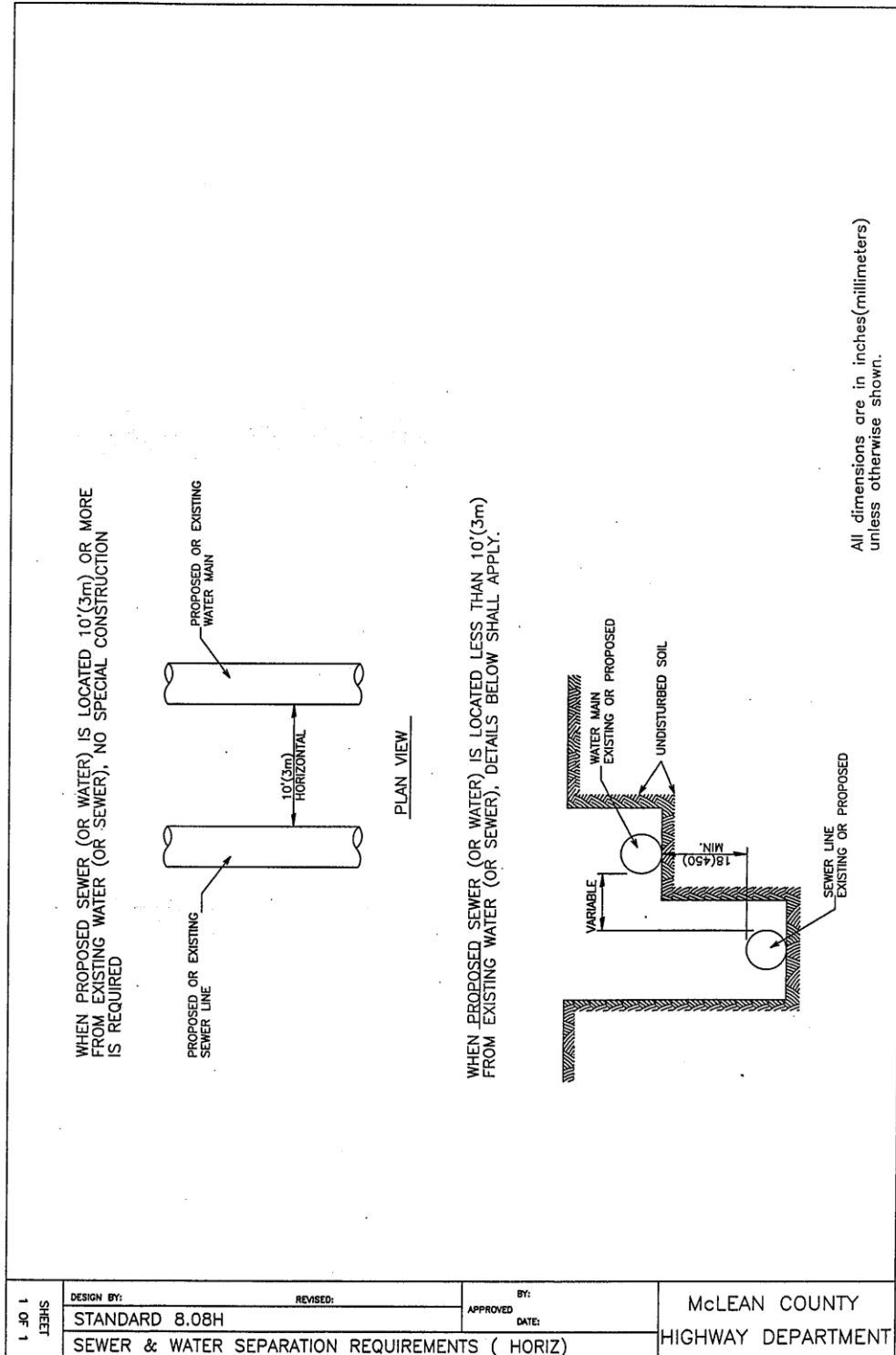
SHEET 1 OF 1	DESIGN BY:	REVISED:	BY:	McLEAN COUNTY HIGHWAY DEPARTMENT
	STANDARD 8.08E		APPROVED	
	SAMPLING & CLORINATION SERVICE PIPING TAP		DATE:	



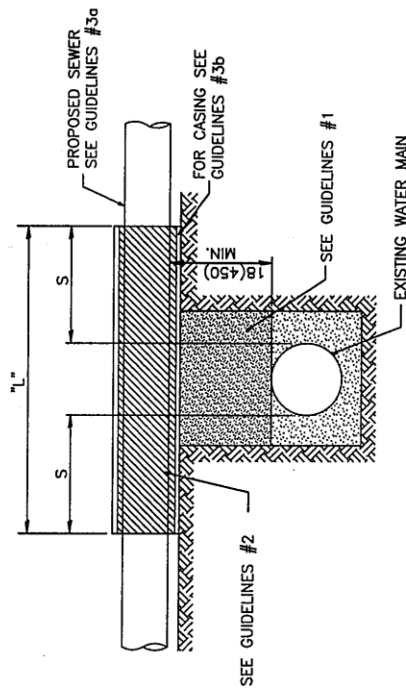
ANCHORAGE OF FITTINGS IN A VERTICAL PLANE



SHEET 1 OF 1	DESIGN BY:	REVISED:	BY:	McLEAN COUNTY HIGHWAY DEPARTMENT
	STANDARD 8.08G		APPROVED DATE:	
	ANCHORAGE OF FITTINGS/ VERTICAL PLANE			



PROPOSED SEWER LINE WITH 18(450) MINIMUM  
VERTICAL SEPARATION ABOVE EXISTING WATER MAIN



NOTE: "S" THE LENGTH NECESSARY  
TO PROVIDE 10'(3m) OF SEPARATION  
AS MEASURED PERPENDICULAR TO  
THE EXISTING WATER MAIN.

GUIDELINES

1. IF SELECT GRANULAR BACKFILL EXISTS: REMOVE  
WITHIN WIDTH OF PROPOSED SEWER TRENCH AND  
REPLACE WITH SELECT EXCAVATED MATERIAL  
(CLASS IV) AND COMPACT.
2. OMIT SELECT GRANULAR CRADLE AND GRANULAR  
BACKFILL TO 12(300) OVER TOP OF SEWER AND  
USE SELECT EXCAVATED MATERIAL (CLASS IV) AND  
COMPACT THE LENGTH OF "L".
3. a. CONSTRUCT "L" OF PROPOSED SEWER OF  
WATER MAIN MATERIAL AND PRESSURE TEST, OR;  
b. USE "L" OF WATER MAIN MATERIAL FOR  
CASING OF PROPOSED SEWER AND SEAL ENDS OF  
CASING.
4. POINT LOADS SHALL NOT BE ALLOWED BETWEEN  
SEWER OR SEWER CASING AND WATER MAIN.

All dimensions are in inches(millimeters)  
unless otherwise shown.

SHEET  
1 OF 1

DESIGN BY:

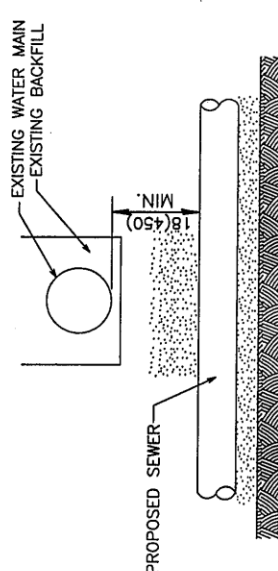
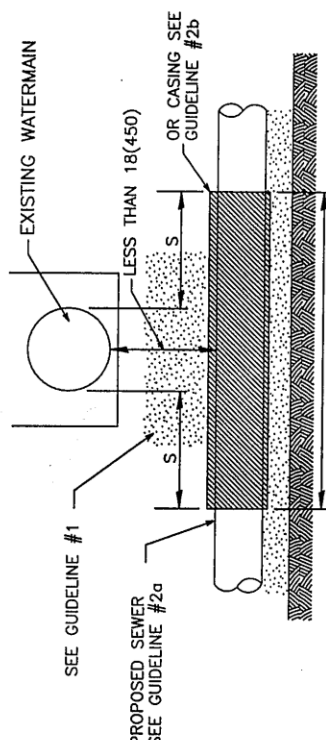
STANDARD 8.081

REVISED:

BY:  
APPROVED  
DATE:

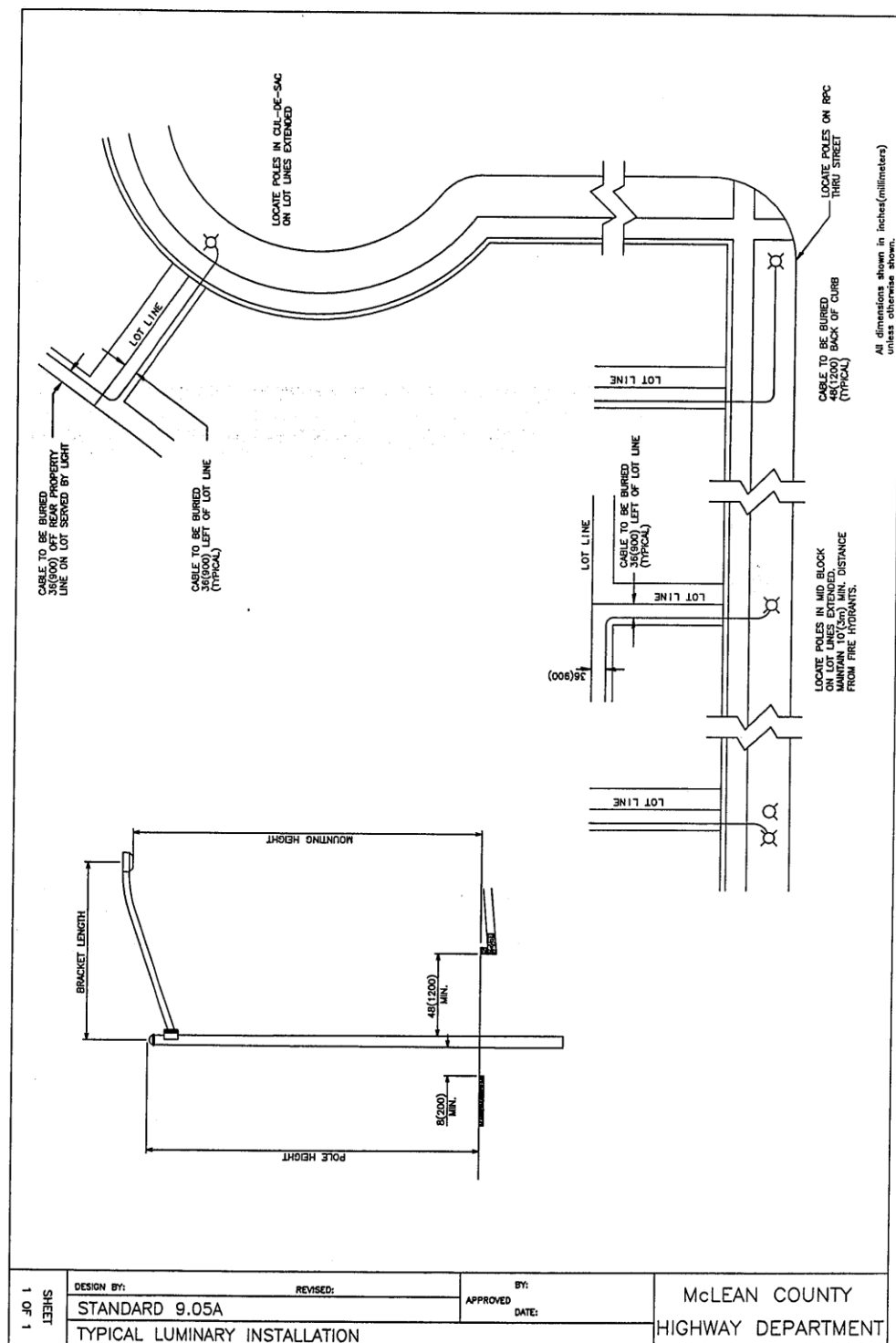
WATER & SEWER SEPARATION REQUIREMENTS (VERT)

McLEAN COUNTY  
HIGHWAY DEPARTMENT

<p>PROPOSED SEWER LINE BELOW EXISTING WATER MAIN WITH 18(450) MINIMUM VERTICAL SEPARATION</p> 	<p>PROPOSED SEWER LINE BELOW EXISTING WATER MAIN WITH LESS THAN 18(450) VERTICAL SEPARATION</p> 	<p>GUIDELINES</p> <ol style="list-style-type: none"> <li>1. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.</li> <li>2. MAINTAIN 450(18) MIN. VERTICAL SEPARATION FOR 10 (3m) HORIZONTALLY.</li> </ol>	<p>GUIDELINES</p> <ol style="list-style-type: none"> <li>1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO 300(12) OVER TOP OF SEWER AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT FOR "S" ON EACH SIDE OF THE WATER MAIN.</li> <li>2a. CONSTRUCT "L" OF PROPOSED SEWER OS WATER MAIN MATERIAL AND PRESSURE TEST, OR;</li> <li>b. USE "L" OF WATER MAIN MATERIAL FOR CASING OF PROPOSED SEWER AND SEAL ENDS OF CASING.</li> <li>3. POINT LOADS SHALL NOT BE ALLOWED BETWEEN SEWER OR SEWER CASING AND WATER MAIN.</li> <li>4. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.</li> </ol>	<p>NOTE: "S" THE LENGTH NECESSARY TO PROVIDE 10(3m) OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING WATER MAIN.</p>
<p>DESIGN BY: STANDARD 8.08J</p>		<p>REVISED:</p>		<p>BY:</p>
<p>PAVEMENT PATCHING DETAIL (TYPE D)</p>		<p>APPROVED DATE:</p>		<p>McLEAN COUNTY HIGHWAY DEPARTMENT</p>

All dimensions are in inches(millimeters) unless otherwise shown.

# McLEAN COUNTY MANUAL OF PRACTICE



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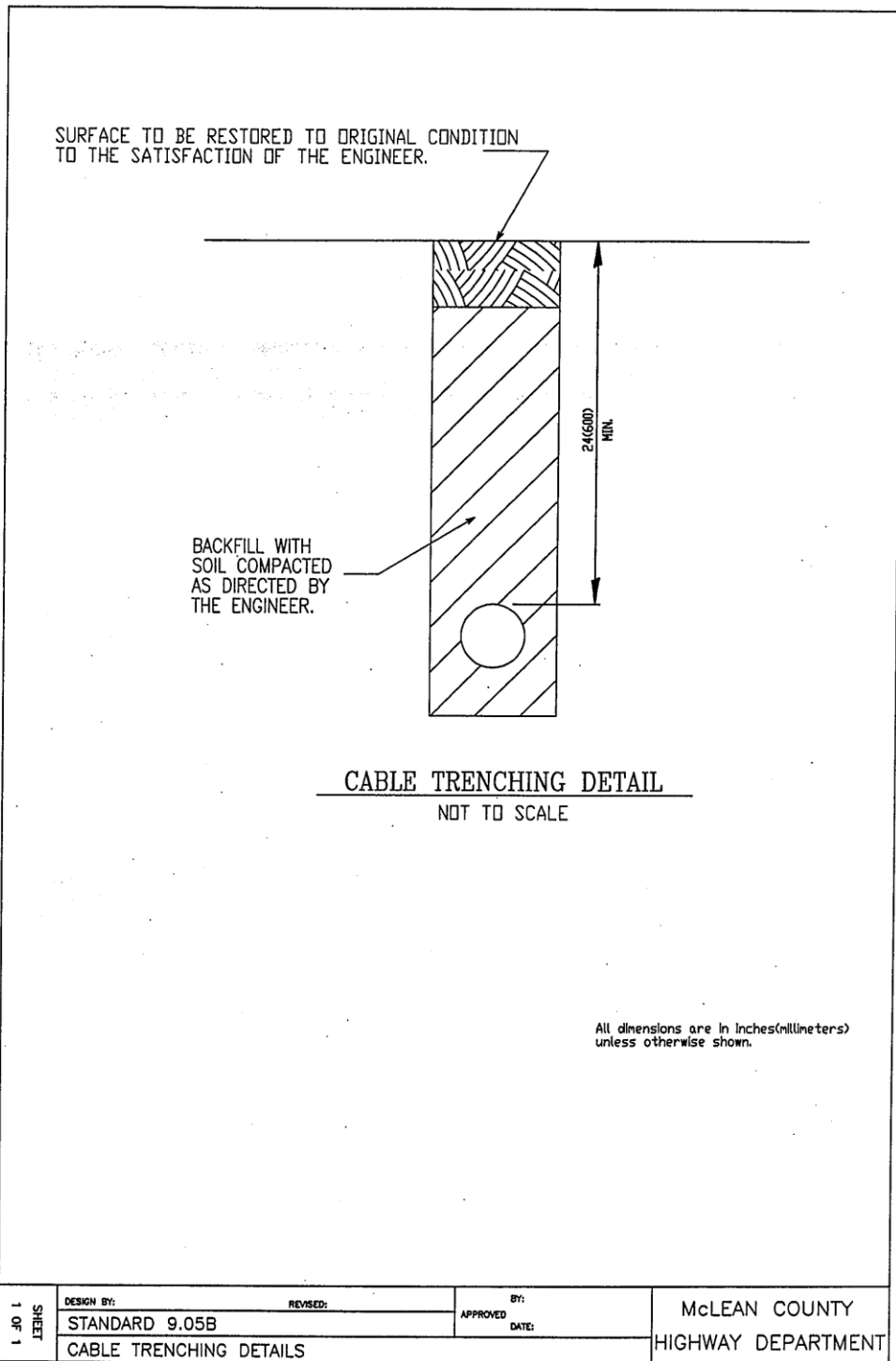


EXHIBIT P

Ex. P

EXHIBIT P  
DESIGN FORMULAS, CHARTS, TABLES, FORMS & EXAMPLES  
OF CALCULATIONS FOR STORM SEWERS,  
DRAINAGE WAYS, & RETENTION/DETENTION FACILITIES

TABLE OF CONTENTS

1. Rational Formula

- a. Rainfall Frequency/Intensity Table
- b. Time of Concentration Chart (overland sheet flow)
- c. Time of Concentration Chart (shallow channel flow)
- d. Table of Runoff Coefficients
- e. Storm Sewer System Design Calculation Worksheet
- f. Capacity Design Calculations for Detention Facilities

2. (USDA) Soil Conservation Service Method

- a. 24 Hour Rainfall Frequency/Amounts Table
- b. Runoff Depth Table
- c. Runoff Curve Numbers Table
- d. Tabular Hydrograph Discharges Table
- e. Single Stage Structure Routing Graph
- f. Capacity Design Calculations for Detention Facilities

3. Detention Reservoir Routing Calculations

# McLEAN COUNTY MANUAL OF PRACTICE

Ex. P1a

## Exhibit P. 1.a

### STORM FREQUENCY INTENSITIES.

TIME	YEAR						
	2	3	5	10	25	50	100
1	4.32	4.68	5.40	6.36	7.68	8.76	9.96
2	4.32	4.68	5.40	6.36	7.68	8.76	9.96
3	4.32	4.68	5.40	6.36	7.68	8.76	9.96
4	4.32	4.68	5.40	6.36	7.68	8.76	9.96
5	4.32	4.68	5.40	6.36	7.68	8.76	9.96
6	4.25	4.60	5.31	6.26	7.55	8.62	9.79
7	4.18	4.53	5.23	6.17	7.42	8.47	9.62
8	4.10	4.45	5.15	6.07	7.28	8.33	9.46
9	4.03	4.38	5.06	5.98	7.15	8.18	9.29
10	3.96	4.30	4.98	5.88	7.02	8.04	9.12
11	3.82	4.14	4.80	5.66	6.77	7.74	8.79
12	3.67	3.99	4.62	5.45	6.52	7.45	8.46
13	3.53	3.83	4.44	5.23	6.26	7.15	8.14
14	3.38	3.68	4.26	5.07	6.01	6.86	7.81
15	3.24	3.52	4.08	4.80	5.76	6.56	7.48
16	3.14	3.40	3.95	4.65	5.58	6.35	7.24
17	3.04	3.30	3.82	4.50	5.40	6.14	7.01
18	2.93	3.18	3.68	4.35	5.22	5.94	6.77
19	2.83	3.07	3.55	4.20	5.04	5.73	6.54
20	2.73	2.96	3.42	4.05	4.86	5.52	6.30
21	2.66	2.89	3.35	3.96	4.75	5.40	6.16
22	2.60	2.82	3.27	3.86	4.64	5.28	6.02
23	2.53	2.76	3.20	3.77	4.52	5.16	5.87
24	2.47	2.69	3.12	3.67	4.41	5.04	5.73
25	2.40	2.62	3.05	3.58	4.30	4.92	5.59
26	2.37	2.58	3.00	3.52	4.23	4.84	5.50
27	2.34	2.54	2.94	3.46	4.16	4.75	5.40
28	2.30	2.50	2.89	3.40	4.08	4.67	5.31
29	2.27	2.46	2.83	3.34	4.01	4.58	5.21
30	2.24	2.42	2.78	3.28	3.94	4.50	5.12
31	2.19	2.37	2.72	3.21	3.86	4.41	5.01
32	2.14	2.32	2.66	3.15	3.78	4.31	4.91
33	2.10	2.26	2.61	3.08	3.69	4.22	4.80
34	2.05	2.21	2.55	3.02	3.61	4.12	4.70
35	2.00	2.16	2.49	2.95	3.53	4.03	4.59
36	1.97	2.12	2.45	2.90	3.47	3.96	4.51
37	1.93	2.09	2.41	2.85	3.41	3.89	4.43
38	1.90	2.05	2.36	2.79	3.35	3.82	4.35
39	1.86	2.02	2.32	2.74	3.29	3.75	4.27
40	1.83	1.98	2.28	2.69	3.23	3.68	4.19
41	1.80	1.95	2.25	2.65	3.18	3.63	4.13
42	1.77	1.92	2.21	2.61	3.13	3.57	4.07

# McLEAN COUNTY MANUAL OF PRACTICE

Ex. P1a (cont. 1.)

43	1.75	1.89	2.18	2.57	3.09	3.52	4.00
44	1.72	1.86	2.14	2.53	3.04	3.46	3.94
45	1.69	1.83	2.11	2.49	2.99	3.41	3.88
46	1.67	1.81	2.08	2.46	2.95	3.37	3.83
47	1.65	1.79	2.05	2.43	2.91	3.32	3.78
48	1.62	1.76	2.03	2.39	2.86	3.28	3.72
49	1.60	1.74	2.00	2.36	2.82	3.23	3.67
50	1.58	1.71	1.97	2.33	2.78	3.19	3.62
51	1.56	1.69	1.95	2.30	2.75	3.15	3.58
52	1.54	1.67	1.93	2.28	2.72	3.12	3.54
53	1.53	1.66	1.91	2.25	2.69	3.08	3.51
54	1.51	1.64	1.89	2.23	2.66	3.05	3.47
55	1.49	1.62	1.87	2.20	2.63	3.01	3.43
56	1.48	1.62	1.85	2.18	2.60	2.98	3.39
57	1.46	1.61	1.83	2.16	2.58	2.95	3.36
58	1.45	1.61	1.81	2.13	2.55	2.92	3.32
59	1.43	1.60	1.79	2.11	2.53	2.89	3.29
60	1.42	1.60	1.77	2.09	2.50	2.86	3.00
65	1.38	1.55	1.72	2.02	2.42	2.77	2.92
70	1.33	1.49	1.66	1.96	2.35	2.68	2.84
75	1.29	1.44	1.61	1.90	2.27	2.60	2.76
80	1.24	1.39	1.55	1.83	2.20	2.51	2.68
85	1.2	1.33	1.50	1.77	2.18	2.42	2.60
90	1.16	1.28	1.44	1.70	2.04	2.33	2.52
95	1.11	1.23	1.39	1.64	1.96	2.24	2.44
100	1.07	1.17	1.33	1.57	1.89	2.15	2.36
105	1.02	1.12	1.28	1.51	1.81	2.07	2.28
110	0.98	1.07	1.22	1.44	1.73	1.98	2.20
115	0.93	1.01	1.17	1.38	1.65	1.89	2.12
120	0.89	0.96	1.11	1.31	1.57	1.80	2.04

This table is derived from the Illinois State Water Survey Circular 172; dated 1989; "Frequency Distributions of Heavy Rainstorms in Illinois."

Rev. March, 1975

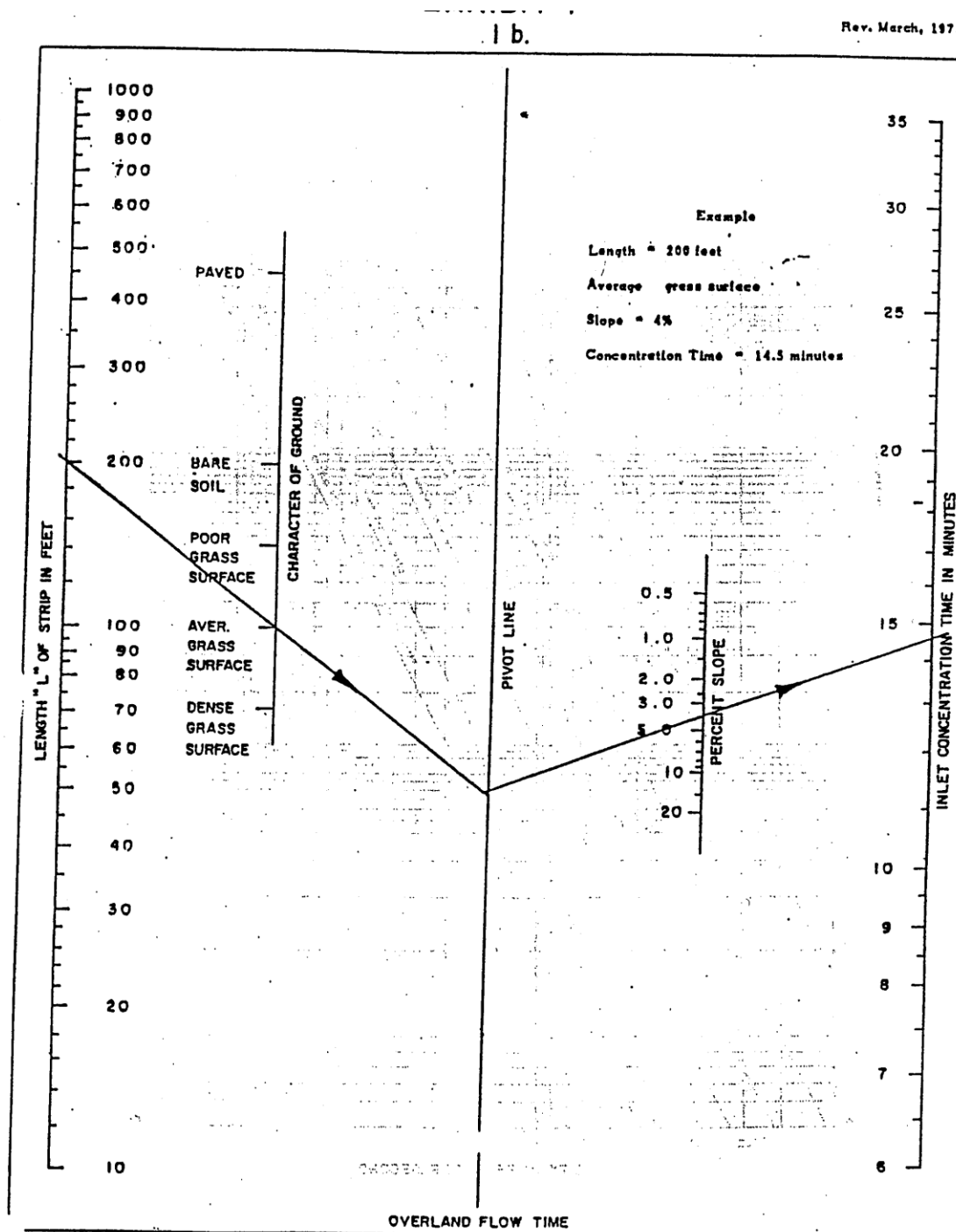
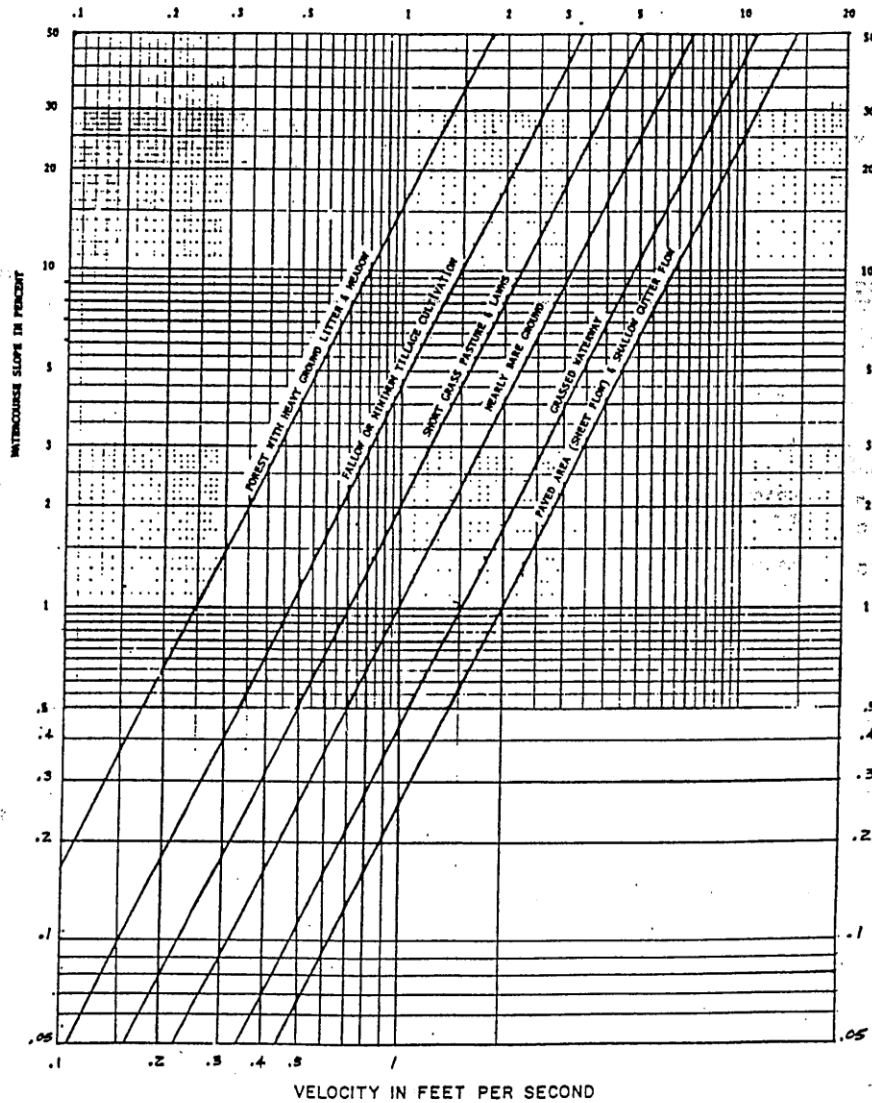


Figure 6-110.011

EXHIBIT P  
1c.  
AVERAGE VELOCITY FOR  
ESTIMATED TRAVEL TIME FOR OVERLAND FLOW



**EXHIBIT P**  
**1 d.**  
**RUNOFF COEFFICIENTS**

VALUES OF C - $\frac{\text{Runoff}}{\text{Rainfall}}$			RUNOFF COEFFICIENT C	
TYPE OF DRAINAGE AREA SURFACES			MIN.	MAX.
ROOFS, slag to metal			0.75	0.95
PAVEMENTS	Asphalt		0.70	0.95
	Concrete		0.80	0.95
	Gravel, from clean and loose to clayey and compact		0.25	0.70
R.R. YARDS			0.20	0.40
EARTH SURFACES	Sand, from uniform grain size, no fines to well graded some clay or silt	Bare	0.15	0.50
		Light Vegetation	0.10	0.40
		Dense Vegetation	0.05	0.30
	Loam, from sandy or gravelly to clayey	Bare	0.20	0.60
		Light Vegetation	0.10	0.45
		Dense Vegetation	0.05	0.35
	Gravel, from clean gravel and gravel sand mixtures, no silt or clay to high clay or silt content	Bare	0.25	0.65
		Light Vegetation	0.15	0.50
		Dense Vegetation	0.10	0.40
	Clay, from coarse sandy or silty to pure colloidal clays	Bare	0.30	0.75
		Light Vegetation	0.20	0.60
		Dense Vegetation	0.15	0.50
COMPOSITE AREAS	City, business areas		0.70	0.95
	City, dense residential areas, vary as to soil & Vegetation		0.50	0.65
	Suburban residential areas, vary as to soil & vegetation		0.35	0.55
	Rural Districts, vary as to soil & vegetation		0.10	0.25
	Parks, Golf Courses, etc., vary as to soil & vegetation		0.10	0.35
LAWNS	Sandy soil, flat 2%		0.05	0.10
	Sandy soil, average 2% to 7%		0.10	0.15
	Sandy soil, steep, 7%		0.15	0.20
	Heavy soil, flat 2%		0.13	0.17
	Heavy soil, average 2% to 7%		0.18	0.22
	Heavy soil, steep 7%		0.25	0.35

NOTE: Values of "C" for earth surfaces are further varied by degree of saturation, compaction, surface irregularity and slope, by character of subsoil, and by presence of frost or glazed snow or ice.

TABLE 6-110.01

LAWSON	LAWSON
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(

EXHIBIT P

1f

Capacity Design Calculations for Detention Facilities

The following calculation method is a modification of the method described in the information pamphlet: "Design Capacity of Storm Water Detention Reservoirs" of the Metropolitan Sanitary District of Greater Chicago; dated 1972.

$$\begin{aligned} \text{Live Detention Storage} &= (\text{Volume Runoff, 50 yr}) - (\text{Release Rate} \times \text{Duration}) \\ (\text{Inches}) &= V_{50} - Q_r t_d = c i_{50} t_d - 0.25 i_3 t_d \end{aligned}$$

Maximum storage volume calculated by this equation for any and all duration ( $t_d$ ) will be the required storage. The terms of the above equation are defined as follows:

$Q_r$  = The maximum release rate in inches per hour from the land in its natural undeveloped state.

0.25 = The coefficient of runoff for the undeveloped land.

$i_3$  = The intensity in inches per hour of the rainfall derived from ISWS/CIR/72/89; "Frequency Distributions of Heavy Rainstorms in Illinois" for three-year frequency for the time of concentration of the undeveloped land. (see Exhibit P/1a.)

$i_{50}$  = The intensity in inches per hour of rainfall derived from ISWS/CIR/72/89; "Frequency Distributions of Heavy Rainstorms in Illinois" for 50-year frequency for any and all durations.

$t_d$  = The duration of the 50-year storm, which must be varied to determine the most critical and therefore maximum required detention.

$c$  = The coefficient of runoff for the completely developed drainage area tributary to the reservoir.

Note:  $i_{50}$  varies with  $t_d$ , however,  $i_{50}$  is calculated using the longest time of concentration for the undeveloped land and becomes a constant in the above equation.

The live detention storage, in inches of depth, is converted to acre-feet by multiplying the inches of depth by the drainage area in acres, and by the factor 0.0833.

# McLEAN COUNTY MANUAL OF PRACTICE

Ex. P1f (pg. 2)

Page Two

## EXHIBIT P/1f

Name of Project \_\_\_\_\_

Date \_\_\_\_\_

Design Engineer \_\_\_\_\_

### I. Determination of Allowable Release Rate - Undeveloped Site:

1. Area of site \_\_\_\_\_ acres
2. Average ground slope \_\_\_\_\_ foot/foot
3. Overland flow distance \_\_\_\_\_ feet
4. Overland flow time of concentration  
(Use Exhibit P/1b) \_\_\_\_\_ minutes
5. Average slope of channelized flow  
(See Note a) \_\_\_\_\_ foot/foot
6. Channelized flow distance (See note a) \_\_\_\_\_ feet
7. Channelized flow time of concentration  
(See note a) \_\_\_\_\_ minutes
8. Total time of concentration  
(line 4 + line 7) \_\_\_\_\_ minutes
9. Rainfall intensity for three-year storm,  
(Use Exhibit P/1a for the time duration on line 8) \_\_\_\_\_ inches/hr
10. Runoff coefficient 0.25
11. Allowable release rate,  
(line 1 x line 9 x line 10)  $Q=c1A$  \_\_\_\_\_ cfs

Note a: For flow in a well defined channel determine time of concentration from measured lengths, cross-sections and slopes and submit necessary calculations and drawings and/or use Exhibit P/1c.

### II. Determination of Reservoir Size - Developed Site:

12. Impervious drainage area \_\_\_\_\_ acres
13. Impervious Runoff coefficient (Use Exhibit P/1d.) \_\_\_\_\_
14. Pervious drainage area \_\_\_\_\_ acres
15. Pervious runoff coefficient (Use Exhibit P/1d) \_\_\_\_\_
16. Coefficient of Runoff for completely developed drainage area  
( $c=(\text{line 12 X line 13})+(\text{line 14 x line 15})/\text{line 1}$ ) \_\_\_\_\_
17. Formula: Live Storage  
(Inches) =  $c i_{50} t_d - 0.25 i_3 t_d = (c i_{50} - 0.25 i_3)$  \_\_\_\_\_

# McLEAN COUNTY MANUAL OF PRACTICE

Ex. P1f (pg. 3)

A	B	C	D	E	F
T	RAINFALL	RUNOFF	RELEASE	STORAGE	STORAGE
(MIN)	(50-YEAR)	RATE	RATE	RATE	(Inches)
	150(in/hr)	ci50	0.25 I3	(ci50-0.25i3)	
5	8.76				
10	8.04				
15	6.56				
20	5.52				
25	4.92				
30	4.50				
35	4.03				
40	3.68				
45	3.41				
50	3.19				
55	3.01				
60	2.86				
65	2.77				
70	2.68				
75	2.60				
80	2.51				
85	2.42				
90	2.33				
95	2.24				
100	2.15				
105	2.07				
110	1.98				
115	1.89				
120	1.80				

18. Maximum live storage required  
(Maximum Storage in Column F x Site Area x 0.0833) \_\_\_\_\_ acre-feet

# McLEAN COUNTY MANUAL OF PRACTICE

Ex. P1f (pg. 4)

## III. Determination of Discharge Orifice

Formula:

$$A = Q/c \ 2GH$$

A = Area (square feet) of Orifice required

Q = Allowable release rate

c = Coefficient 0.61 - orifice hole  
0.82 - orifice tube

H = Headwater (depth from high water  
to the center line of the orifice)

G = 32.2 (feet/sec/sec) Acceleration of gravity

19. Coefficient c

20. Headwater (H)

21. Orifice Area

(A=line 11/line 19 x 2 x 32.2 x line 20)  $\frac{1}{2}$

22. Orifice Type (Hole or Tube)

## IV. Permissible Bypass Rate through Development Site from Upstream Area:

A. Determination of Bypass Rate:

23. Total area upstream

24. Future/present impervious area  
(cross out inappropriate case)

25. Future/present pervious area  
(cross out inappropriate case)

26. Composite runoff coefficient  
(must not be less than 0.40)

27. Design storm frequency for the upstream area

28. Time of concentration, for the upstream area at point of entry (upstream  
area to be considered as undeveloped  
by same method as line 8)

29. Design storm intensity for above duration

30. Permissible bypass rate (line 23 x line 26 x line 29)

Ex. P1f (pg. 5)

B. Determination of Required Size of Bypass System:

31. Bypass system will be open channel/closed conduit  
(cross out inappropriate case)
32. Water cross-section area for discharge in line 30 \_\_\_\_\_ sq.ft.
33. Wetted perimeter for area in line 32 \_\_\_\_\_ feet
34. Hydraulic radius (line 32 ÷ line 33) \_\_\_\_\_ feet
35. Line 34 to the 2/3 power \_\_\_\_\_
36. Invert slope \_\_\_\_\_ foot/foot
37. Line 36 to the 1/2 power \_\_\_\_\_
38. Manning's roughness coefficient, n = \_\_\_\_\_
39. Bypass capacity  

$$Q = \frac{1.49 A R^{2/3} S^{1/2}}{n}$$

# McLEAN COUNTY MANUAL OF PRACTICE

Ex. P2a

## EXHIBIT P

2a

Frequency Distribution for 24-hour Rainfall Storm Period

<u>FREQUENCY (YEARS)</u>	<u>RAINFALL (INCHES)</u>
2	3.02
3	3.27
5	3.76
10	4.45
25	5.32
50	6.08
100	6.92

From: Illinois State Water Survey Circular 172; dated 1989; "Frequency Distributions of Heavy Rainstorms in Illinois".

Ex. P2b

USDA/Soil Conservation Service Technical Release No. 55;1975

Table 2-2.--Runoff curve numbers for selected agricultural, suburban, and urban land use. (Antecedent moisture condition II, and  $I_a = 0.2S$ )

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP			
	A	B	C	D
Cultivated land <sup>1/</sup> : without conservation treatment	72	81	88	91
: with conservation treatment	62	71	78	81
Pasture or range land: poor condition	68	79	86	89
good condition	39	61	74	80
Meadow: good condition	30	58	71	78
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83
good cover <sup>2/</sup>	25	55	70	77
Open Spaces, lawns, parks, golf courses, cemeteries, etc.				
good condition: grass cover on 75% or more of the area	39	61	74	80
fair condition: grass cover on 50% to 75% of the area	49	69	79	84
Commercial and business areas (85% impervious)	89	92	94	95
Industrial districts (72% impervious).	81	88	91	93
Residential: <sup>3/</sup>				
Average lot size                      Average % Impervious <sup>4/</sup>				
1/8 acre or less                      65	77	85	90	92
1/4 acre                                 38	61	75	83	87
1/3 acre                                 30	57	72	81	86
1/2 acre                                 25	54	70	80	85
1 acre                                    20	51	68	79	84
Paved parking lots, roofs, driveways, etc. <sup>5/</sup>	98	98	98	98
Streets and roads:				
paved with curbs and storm sewers <sup>6/</sup>	98	98	98	98
gravel	76	85	89	91
dirt	72	82	87	89

1/ For a more detailed description of agricultural land use curve numbers refer to National Engineering Handbook, Section 4, Hydrology, Chapter 9, Aug. 1972.

2/ Good cover is protected from grazing and litter and brush cover soil.

2/ Curve numbers are computed assuming the runoff from the house and driveway is directed towards the street with a minimum of roof water directed to lawns where additional infiltration could occur.

2/ The remaining pervious areas (lawn) are considered to be in good pasture condition for these curve numbers.

<sup>2</sup>/ In some warmer climates of the country a curve number of 95 may be used.

# McLEAN COUNTY MANUAL OF PRACTICE

## EXHIBIT P 2c. RUNOFF DEPTH TABLE

Ex. P2c

USDA/Soil Conservation Service Technical Release No. 55; 1975

Table 2-1.--Runoff depth in inches for selected CN's and rainfall amounts

Rainfall (inches)	Curve Number (CN) <sup>1/</sup>								
	60	65	70	75	80	85	90	95	98
1.0	0	0	0	0.03	0.08	0.17	0.32	.56	.79
1.2	0	0	0.03	0.07	0.15	0.28	0.46	.74	.99
1.4	0	0.02	0.06	0.13	0.24	0.39	0.61	.92	1.18
1.6	0.01	0.05	0.11	0.20	0.34	0.52	0.76	1.11	1.38
1.8	0.03	0.09	0.17	0.29	0.44	0.65	0.93	1.29	1.58
2.0	0.06	0.14	0.24	0.38	0.56	0.80	1.09	1.48	1.77
2.5	0.17	0.30	0.46	0.65	0.89	1.18	1.53	1.96	2.27
3.0	0.33	0.51	0.72	0.96	1.25	1.59	1.98	2.45	2.78
4.0	0.76	1.03	1.33	1.67	2.04	2.46	2.92	3.43	3.77
5.0	1.30	1.65	2.04	2.45	2.89	3.37	3.88	4.42	4.76
6.0	1.92	2.35	2.80	3.28	3.78	4.31	4.85	5.41	5.76
7.0	2.60	3.10	3.62	4.15	4.69	5.26	5.82	6.41	6.76
8.0	3.33	3.90	4.47	5.04	5.62	6.22	6.81	7.40	7.76
9.0	4.10	4.72	5.34	5.95	6.57	7.19	7.79	8.40	8.76
10.0	4.90	5.57	6.23	6.88	7.52	8.16	8.78	9.40	9.76
11.0	5.72	6.44	7.13	7.82	8.48	9.14	9.77	10.39	10.76
12.0	6.56	7.32	8.05	8.76	9.45	10.12	10.76	11.39	11.76

<sup>1/</sup> To obtain runoff depths for CN's and other rainfall amounts not shown in this table, use an arithmetic interpolation.



EXHIBIT P  
2e.  
Page 1.  
Single Stage Structure Routing Graph

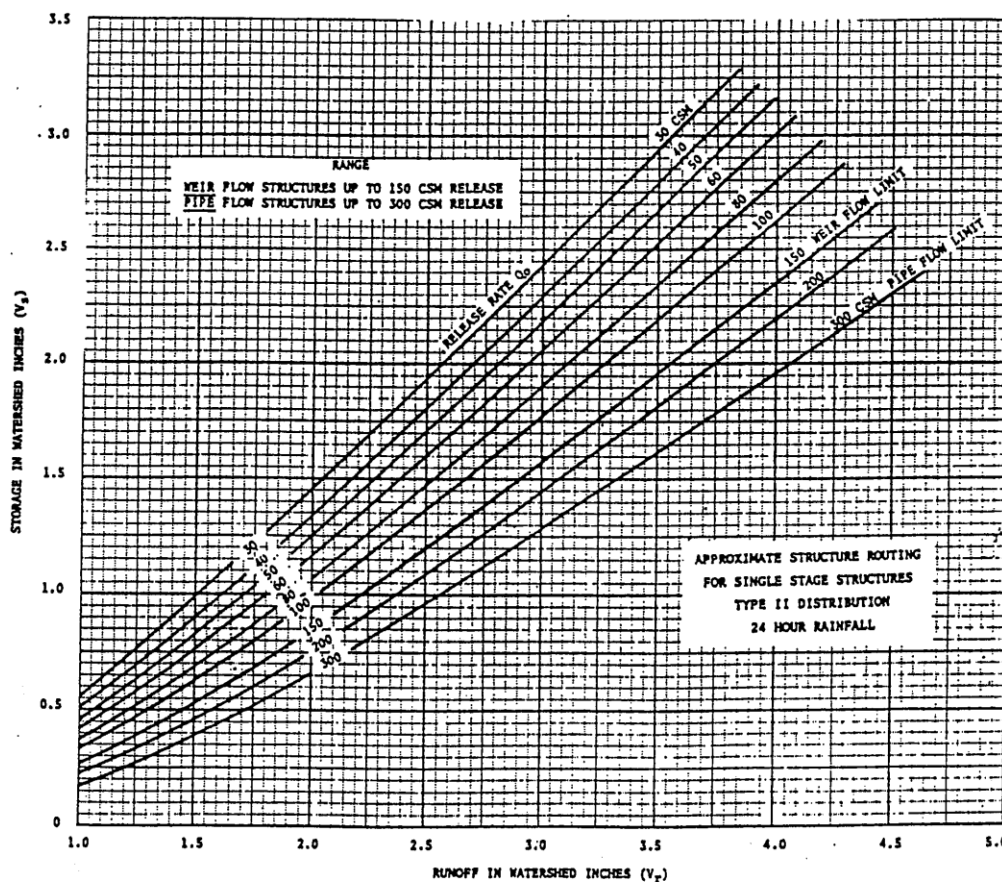


Figure 7-1.--Approximate single-stage structure routing for weir flow structures up to 150 csm release rate and pipe flow structures up to 300 csm release rate.

(USDA/Soil Conservation Service Technical Release No. 55; 1975)

Ex. P2e (pg. 2)

EXHIBIT P

2e.

Page 2.

Single Stage Structure Routing Graph

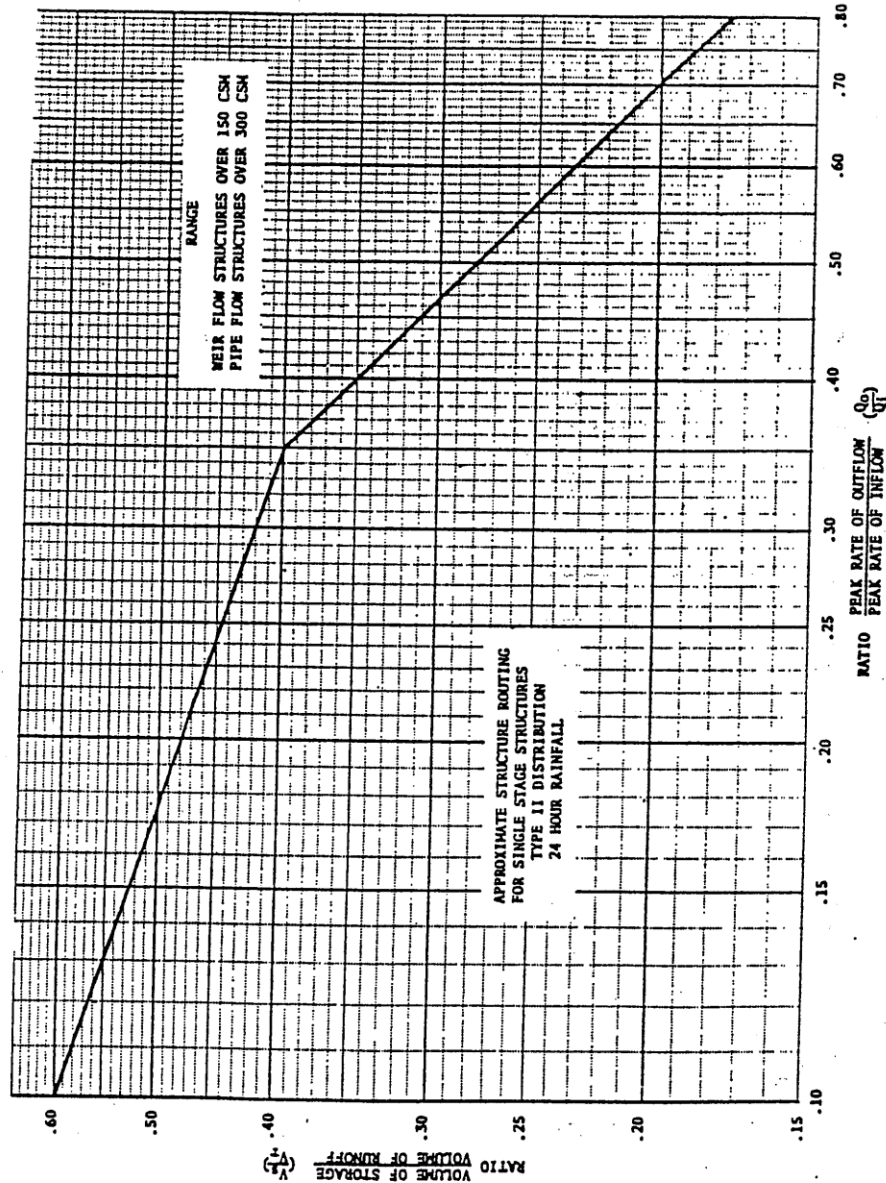


Figure 7-2.--Approximate single-stage structure routing for weir flow structures over 150 csm release rate and pipe flow structures over 300 csm release rate.

(USDA/Soil Conservation Service, Technical Release No. 55; 1975)

Ex. P2f (pg. 1)

CAPACITY DESIGN CALCULATIONS FOR DETENTION FACILITIES

Project \_\_\_\_\_ By \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Checked \_\_\_\_\_ Date \_\_\_\_\_

1. Data:

2. Runoff Curve Number (CN) PRESENT CONDITION

Hydrologic Soil Group (TR55/AP.B)	Land Use Description Include Treatment, Practice & Condition (Table 2-2) [Ex. P/2b]	CN (Table 2-2) (3)	% or Area (acres) (4)	Product (3)x(4) (5)
Totals =				

CN (weighted) =  $\frac{\text{total col. (5)}}{\text{total col. (4)}} \left[ \frac{\text{total col. (6)}}{\text{total col. (4)}} \right] = \underline{\hspace{2cm}}; \text{ use CN} = \boxed{\hspace{2cm}}$

DEVELOPED CONDITION

Hydrologic Soil Group (TR55/AP.B)	Land Use Description Include Treatment, Practice & Condition (Table 2-2)[Ex. P/2b]	CN (Table 2-2) (3)	% or Area (acres) (4)	Product (3)x(4) (5)
Totals =				

$$CN \text{ (weighted)} = \frac{\text{total col. (5)}}{\text{total col. (4)}} \left[ \frac{\text{total col. (6)}}{\text{total col. (4)}} \right] = \frac{\text{total col. (6)}}{\text{total col. (4)}} \quad \text{use CN} = \frac{\text{total col. (6)}}{\text{total col. (4)}}$$

# McLEAN COUNTY MANUAL OF PRACTICE

Ex. P2f (pg. 2)

## EXHIBIT P 2f. CAPACITY DESIGN CALCULATIONS FOR DETENTION FACILITIES

3. Rainfall Frequency (F)

Rainfall Depth (P)

1st Storm	2nd Storm	3rd Storm	
PRESENT 3	DEVELOPED 50	DEVELOPED 100	hrs.
3.27	6.08	6.92	inches

4. Runoff Depth (Q)

Use F, CN, and Table 2-1. (2c.)

			inches
--	--	--	--------

5. Time of Concentration

			minutes
--	--	--	---------

6. Peak Discharge

(Peak value from 2d. x P x DA)

Qo	Qi	Qi	c.f.s.

7. Allowable Peak Discharge (Q<sub>03</sub>)

	c.f.s.
--	--------

Estimation of Storage Volume Required

8. Ratio: Qo/Qi

Volume of Storage/Volume of Runoff (2e.) Vs/Vr


9. Volume of Storage (Vs)

(Vs/Vr x (P/12) x DA)

		acre-feet
--	--	-----------

10. Volume of Storage Required

	acre-feet
--	-----------

Note: This calculation is adequate for submittal for preliminary plan approval.

Detention reservoir routing calculations as outlined in Section 3 of Exhibit P of this manual will be required for approval of public improvement engineering plans and specifications.

# McLEAN COUNTY MANUAL OF PRACTICE

## APPENDIX A

### APPENDIX A

#### RECOMMENDATIONS OF PRELIMINARY PLAN APPROVAL BY THE COMMITTEE OF THE McLEAN COUNTY BOARD

Notice is hereby given that the Preliminary Plan of the subdivision shown hereon is recommended by the Committee of the County Board, County of McLean, Illinois, for County Board approval with the modification (if any) as noted in Attachment A, which is attached hereto.

The County Board of McLean County,  
Illinois

Date \_\_\_\_\_, 20\_\_\_\_

By \_\_\_\_\_  
Chairman

By \_\_\_\_\_  
Secretary

#### NOTICE OF APPROVAL OF PRELIMINARY PLAN BY THE COUNTY BOARD OF McLEAN COUNTY, ILLINOIS

Notice is hereby given that the Preliminary Plan of the subdivision shown hereon has received approval by the County Board, and upon compliance by the subdivider with the requirements of qualification governing the approval of Preliminary Plans and with other revisions and stipulation that may be required, as noted on Attachment A, which is attached hereto, the County board will receive the Final Plat of such subdivision or portion thereof for consideration when submitted by the subdivider in such form and within such time as required by the Resolution.

The County Board of McLean County,  
Illinois

By \_\_\_\_\_  
County Board Chairman

Date \_\_\_\_\_, 20\_\_\_\_

Attest: \_\_\_\_\_  
County Clerk

Date \_\_\_\_\_, 20\_\_\_\_

**RECOMMENDATIONS OF PRELIMINARY PLAN APPROVAL BY THE COMMITTEE OF THE McLEAN COUNTY BOARD**

Notice is hereby given that the Preliminary Plan of the subdivision shown hereon is recommended by the Committee of the County Board, County of McLean, Illinois, to be approved by the County Board with the modification (if any) as noted in Attachment A, which is attached hereto.

The Committee of the County Board  
County of McLean, Illinois  
Date April 14 1995  
By Eugene R. Smith Chairman  
By Robert J. Smith Secretary

**NOTICE OF APPROVAL OF PRELIMINARY PLAN BY THE COUNTY BOARD OF McLEAN COUNTY, ILLINOIS**

Notice is hereby given that the Preliminary Plan of the subdivision shown hereon has received approval by the County Board, and in compliance with the approval of the County Board and with other revisions and modifications that may be required, as noted on Attachment A, which is attached hereto, the County Board will receive the Final Plat of such subdivision, the subscriber in such form and within such time as required by this Resolution.

The County Board of McLean County,  
Illinois  
By Robert J. Smith County Board Chairman  
Date April 18 1995

Attest: [Signature]  
County Clerk  
Date April 18 1995

Donna Chute L.R.P.E. #3689 DATE 5/17/95

**Old Town Timber Subdivision Preliminary Plan**

**Jockey & Brown, Inc.**  
Engineers & Land Surveyors  
25 North Main Street  
Bloomington, Illinois  
Ph (309) 829-2552

Rev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Rev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100